Western Regional
Climate Center

CalClim:
Access to California Climate Data and Products

Kelly T. Redmond

Laura M. Edwards

Western Regional Climate Center

Desert Research Institute

In coordination with

Scripps California Climate Change Center

Supported by

California Energy Commission

DRI
Desert Research Institute

SCRIPPS INSTITUTION OF OCEANOGRAPHY
UCSD

Elements of CalClim – Initial Efforts

Funded through CEC PIER Program

Access to climate data and products and information
California Climate Data Archive (CCDA)

Monitoring climate variability and change in California

California Climate Watch online newsletter

California Coastal Climate Data Archive

Partners

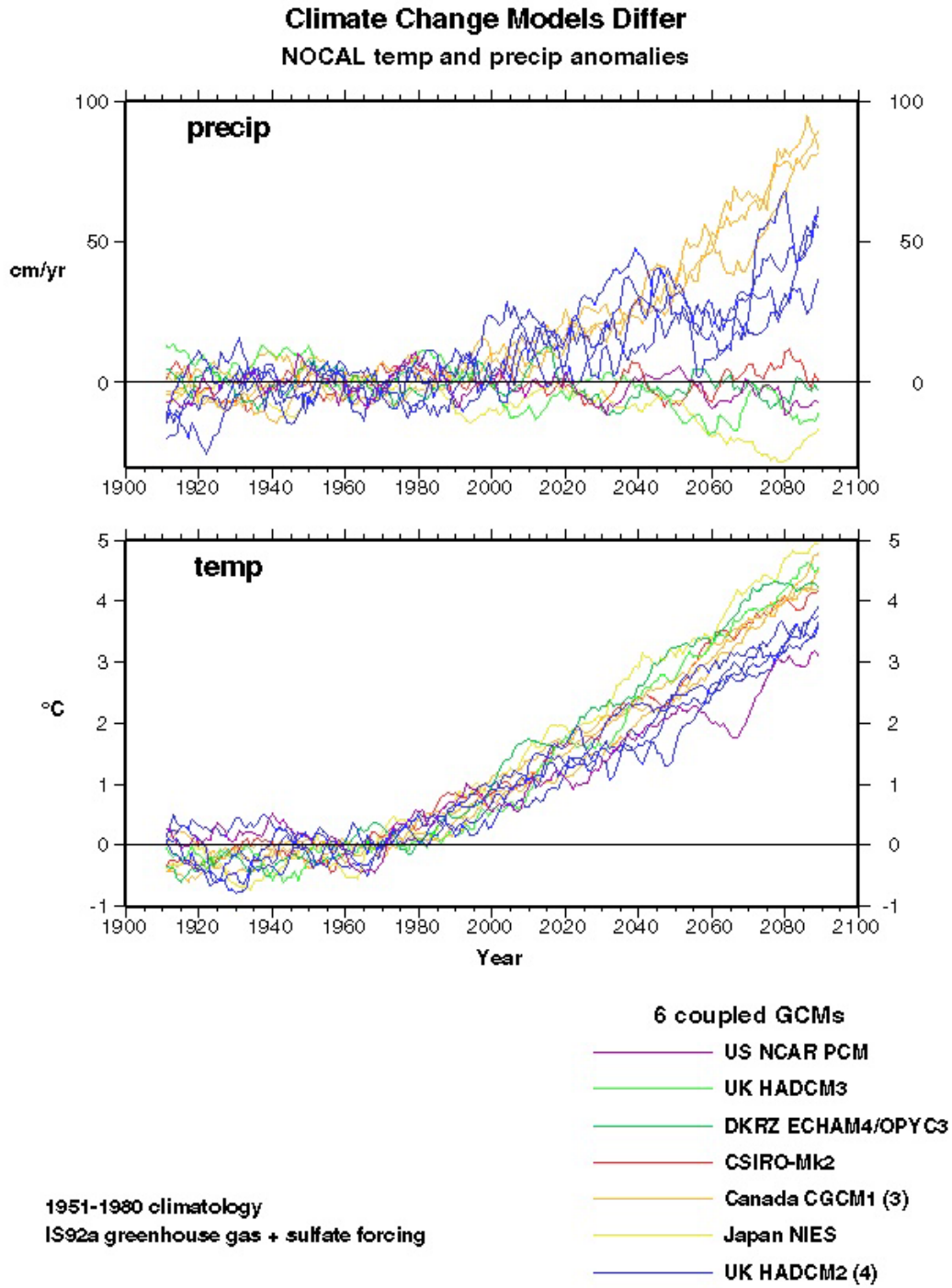
We will be working especially closely with:

- California Climate Change Center
  - Scripps Climate Research Division
- California Department of Water Resources
  - Division of Flood Management
  - California Snow Survey
  - California Data Exchange Center
  - State Climatologist
- National Weather Service
  - Weather Forecast Offices
  - River Forecast Center
- California Energy Commission

Six models, 12 opinions, for Northern California. 1900-2100

Precipitation

Temperature



Thanks to Mike Dettinger, Scripps / USGS

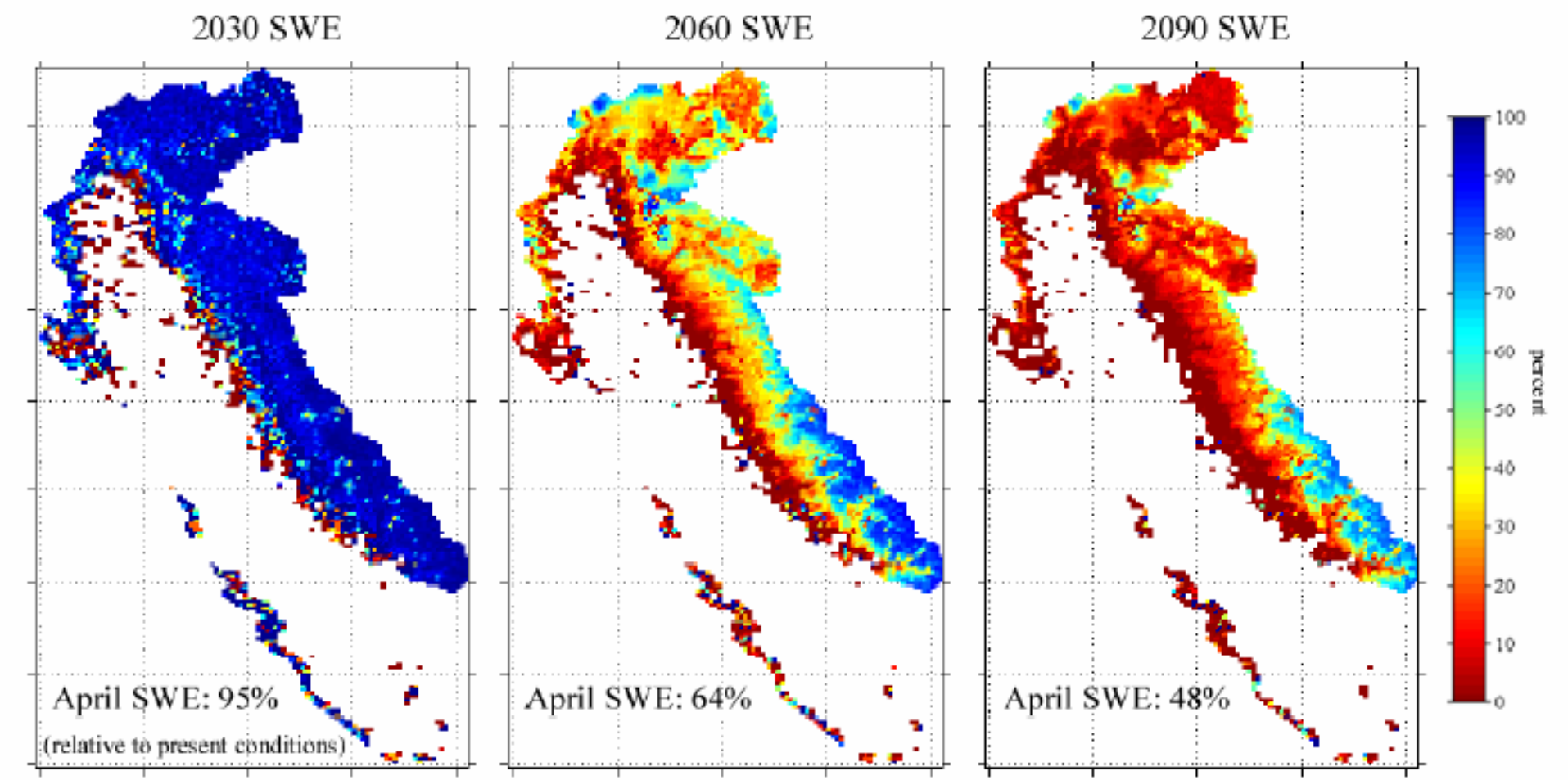


Figure 3. Simulated snow water equivalent (SWE) under a projected temperature increase for the periods 2020-2039, 2050-2069 and 2080-2099, expressed as a percentage of average present conditions.

Potential effects of global warming on the Sacramento / San Joaquin watershed and the San Francisco estuary

Noah Knowles and Dan Cayan, Climate Research Division, Scripps Institution of Oceanography

P

T **6 C**

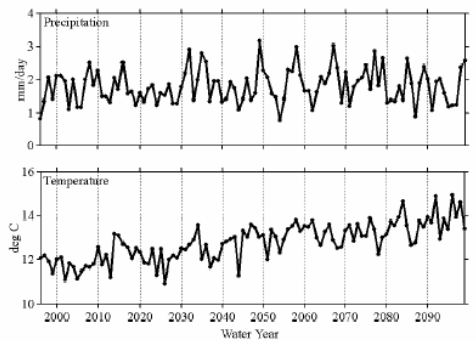
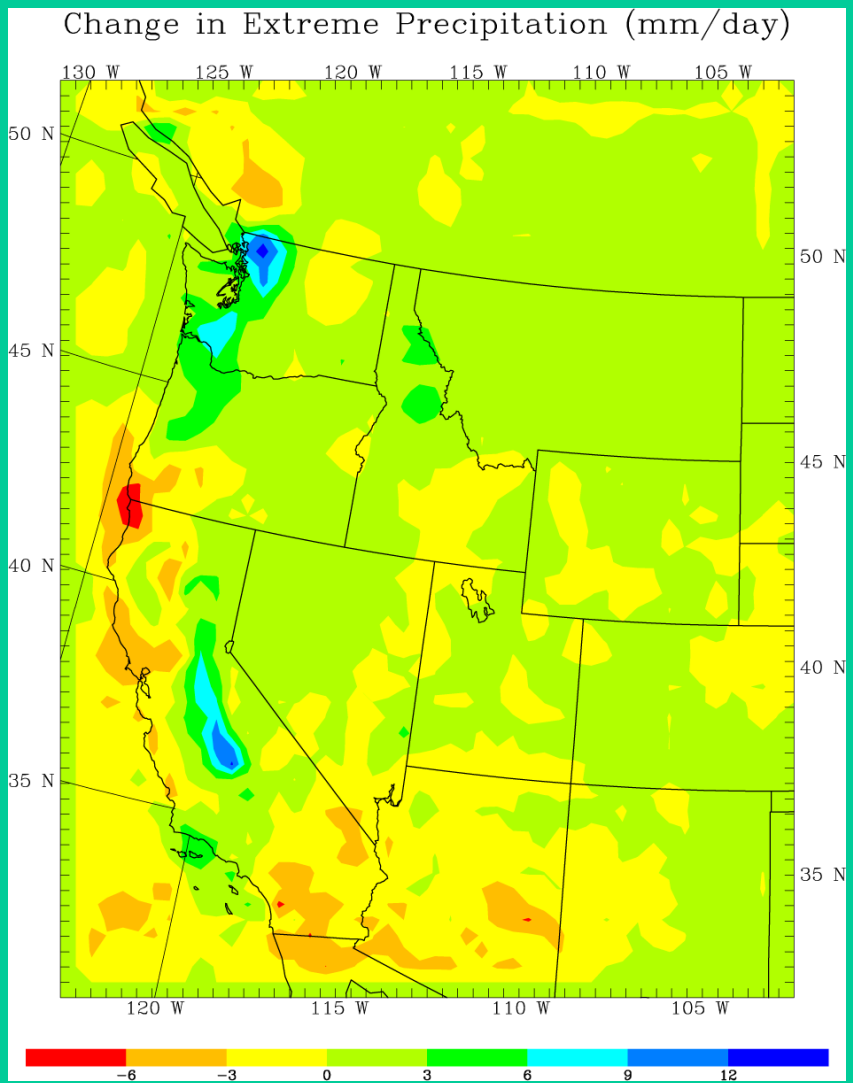


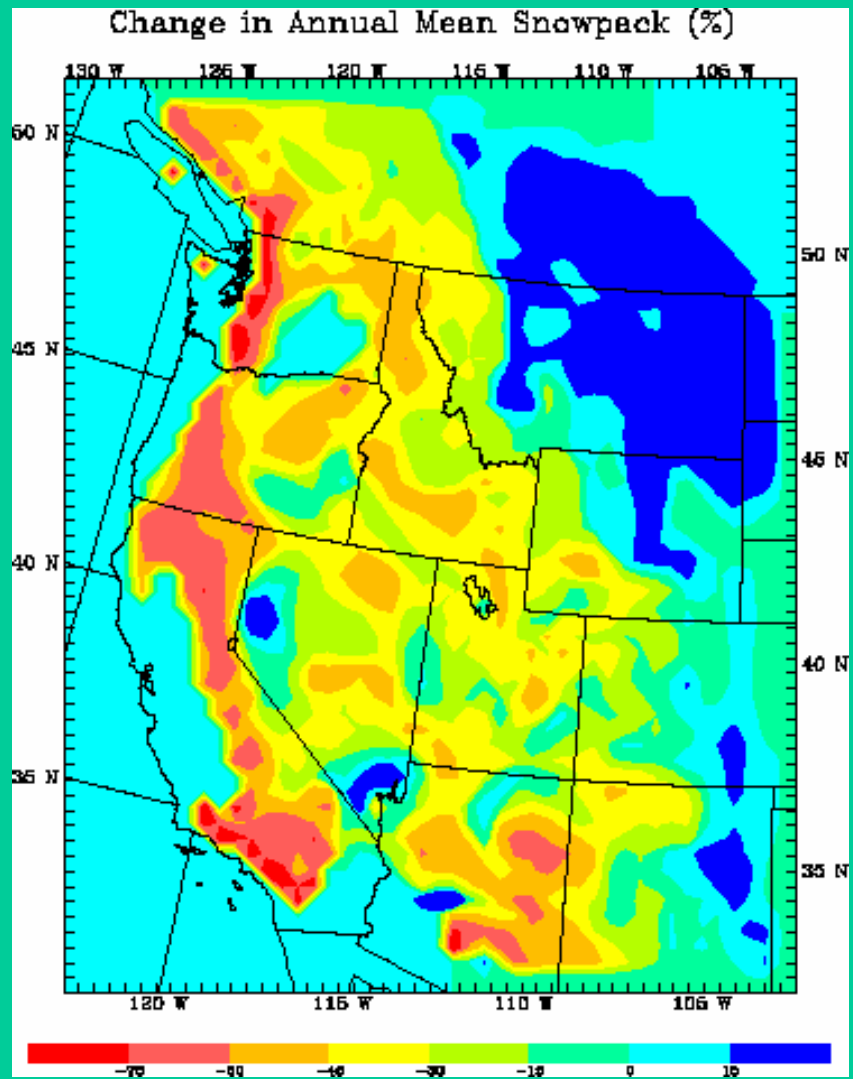
Figure 2. PCM-simulated watershed-averaged annual precipitation and temperature for WY 1995-2099.

2040-2060, BAU Scenario. PCM (NCAR/DOE). Ctsy Bill Pennell, Ruby Leung, PNNL.

April 1 Snow Water Equivalent on right.

Extreme Precipitation / Snowpack Changes





Question:

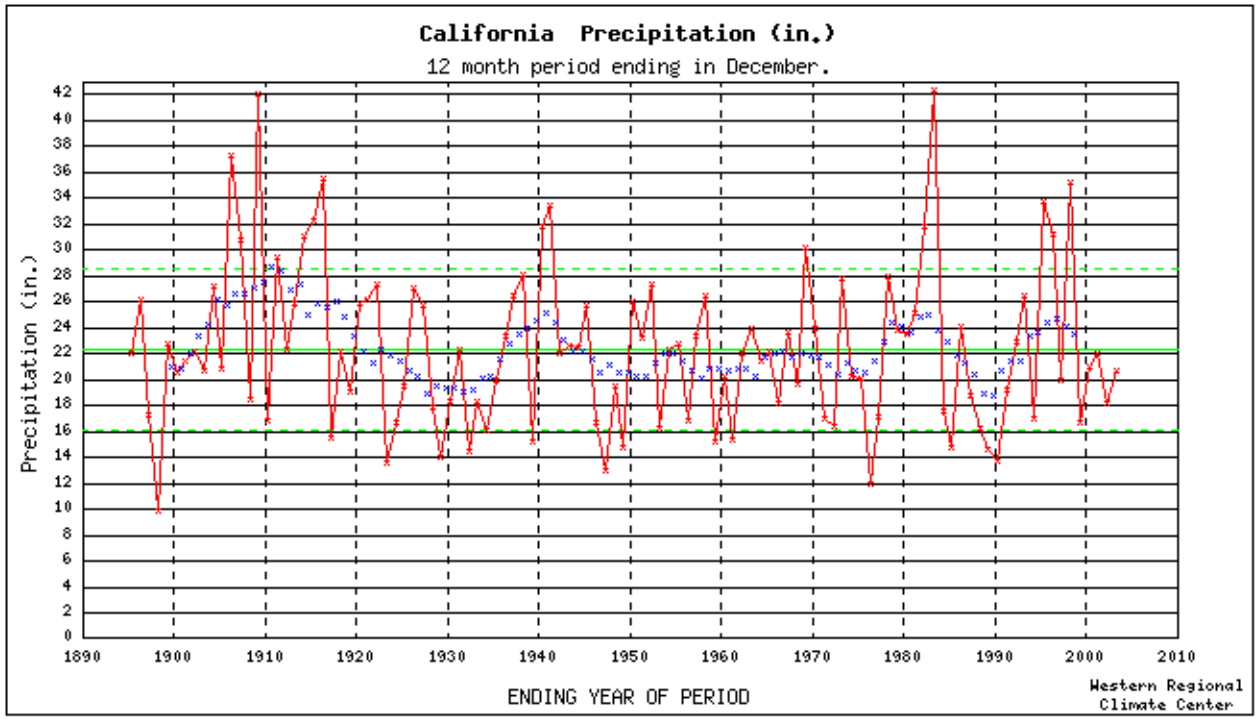
Is California “participating” in climate change ?

Is California “participating” in climate change ?

If so, how ?

How would we know ?

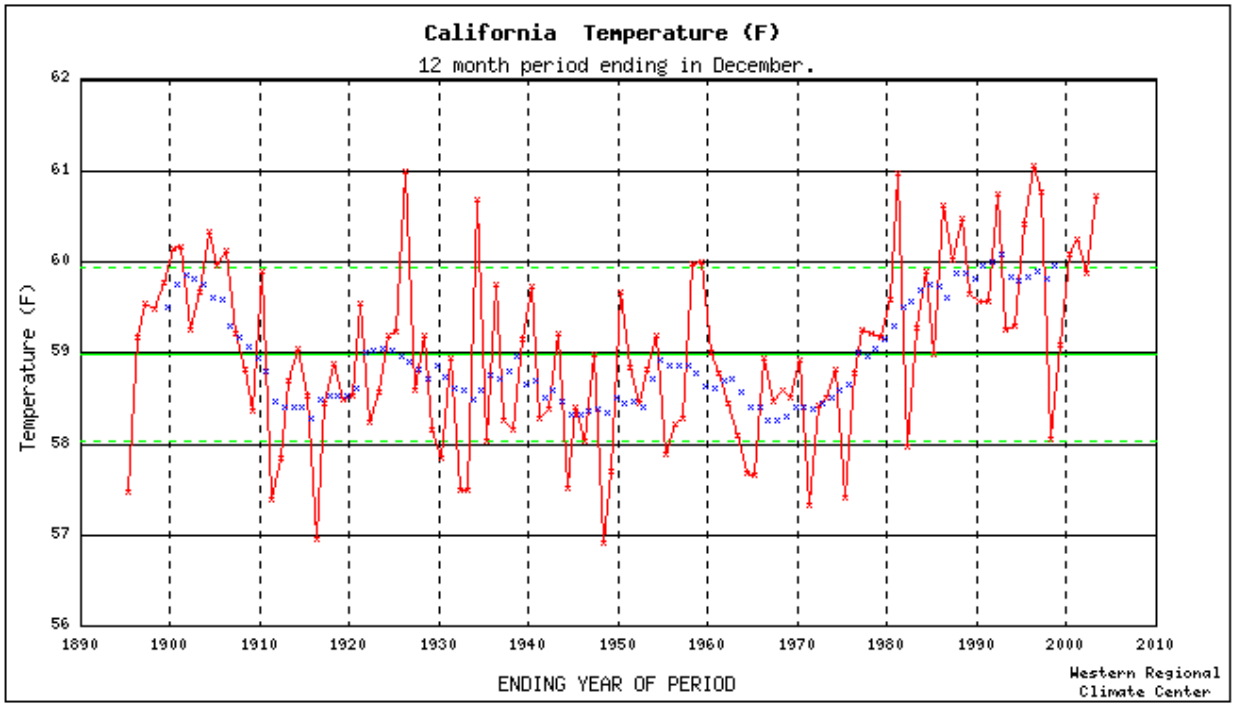
344 U.S. Climate Divisions Monthly 1895-Present



red - 12 month period

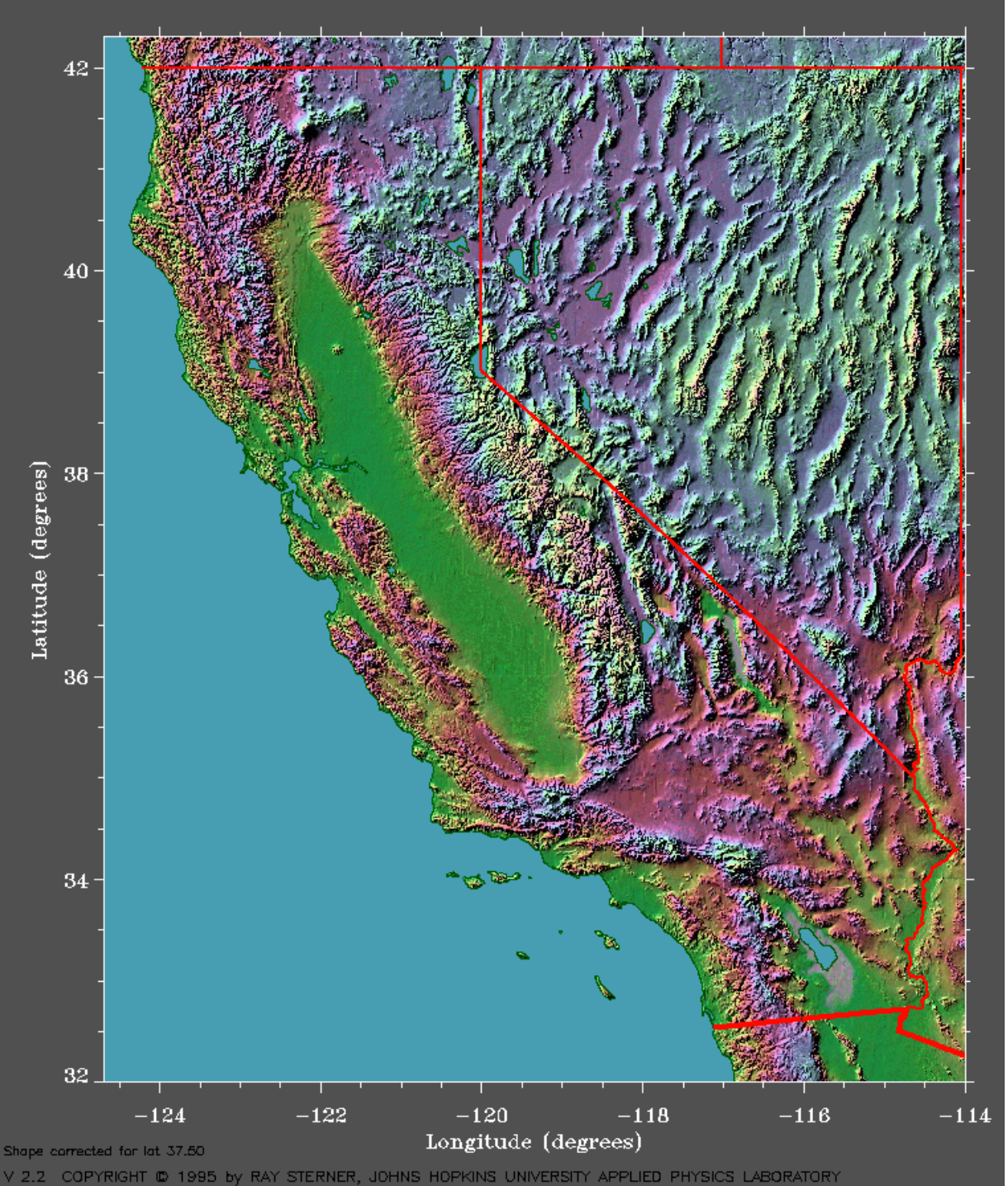
California Statewide Precipitation

1895-2003



California Statewide Temperature

1895-2003



Does this:

Capture this ?

More details, please !

Darwin Glacier, Kings Canyon National Park

August 14, 1908

August 2, 2003

Darwin Glacier

1908

2003

Supplied by

Nate Stephenson

California Climate Data Archive

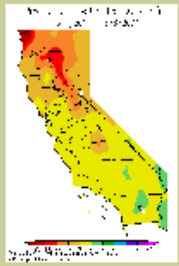
Western Regional Climate Center
Scripps Institution of Oceanography
California Energy Commission

About Us
Project Partners
Contact Us
California Climate Watch

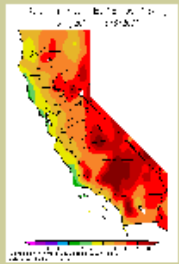
April 2004 Climate Watch

Highlights:
- Monthly Weather Summary by Bill Mork, California Department of Water Resources
- Feature Story: Vegetation Adaptation and Migration
- Monthly Weather Data and Recent Climate Maps
- Climate Forecasts and Outlooks: ENSO, Fire, Hydrology

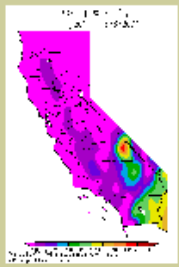
Current Climate Maps:



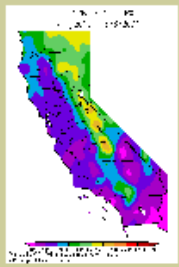
Month-to-date Precipitation Anomaly



Month-to-Date Departure from Average Temperature



Cooling Degree Days since Jan 1



Heating Degree Days since Jul 1

www.calclim.dri.edu

Click here to see other products like this.

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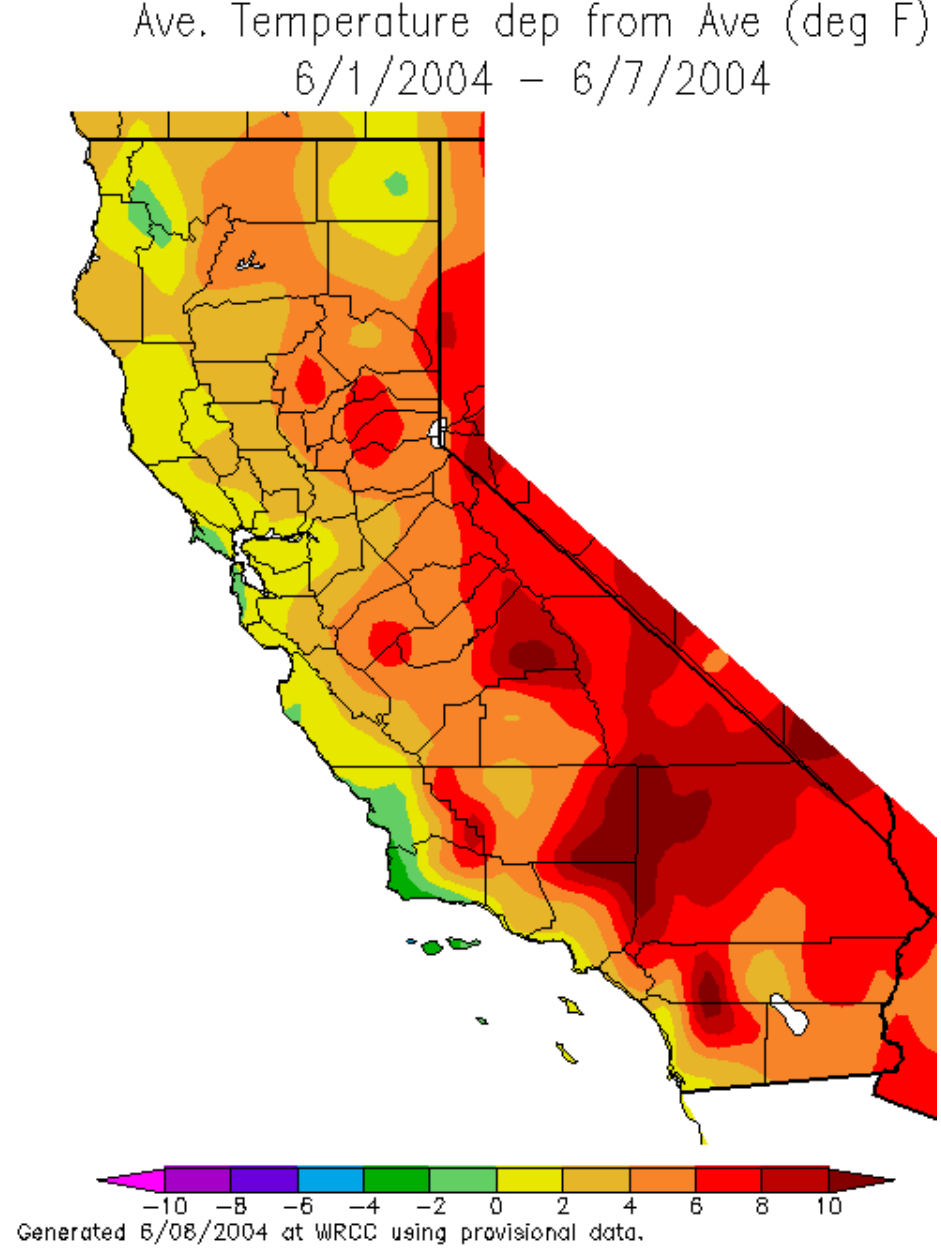
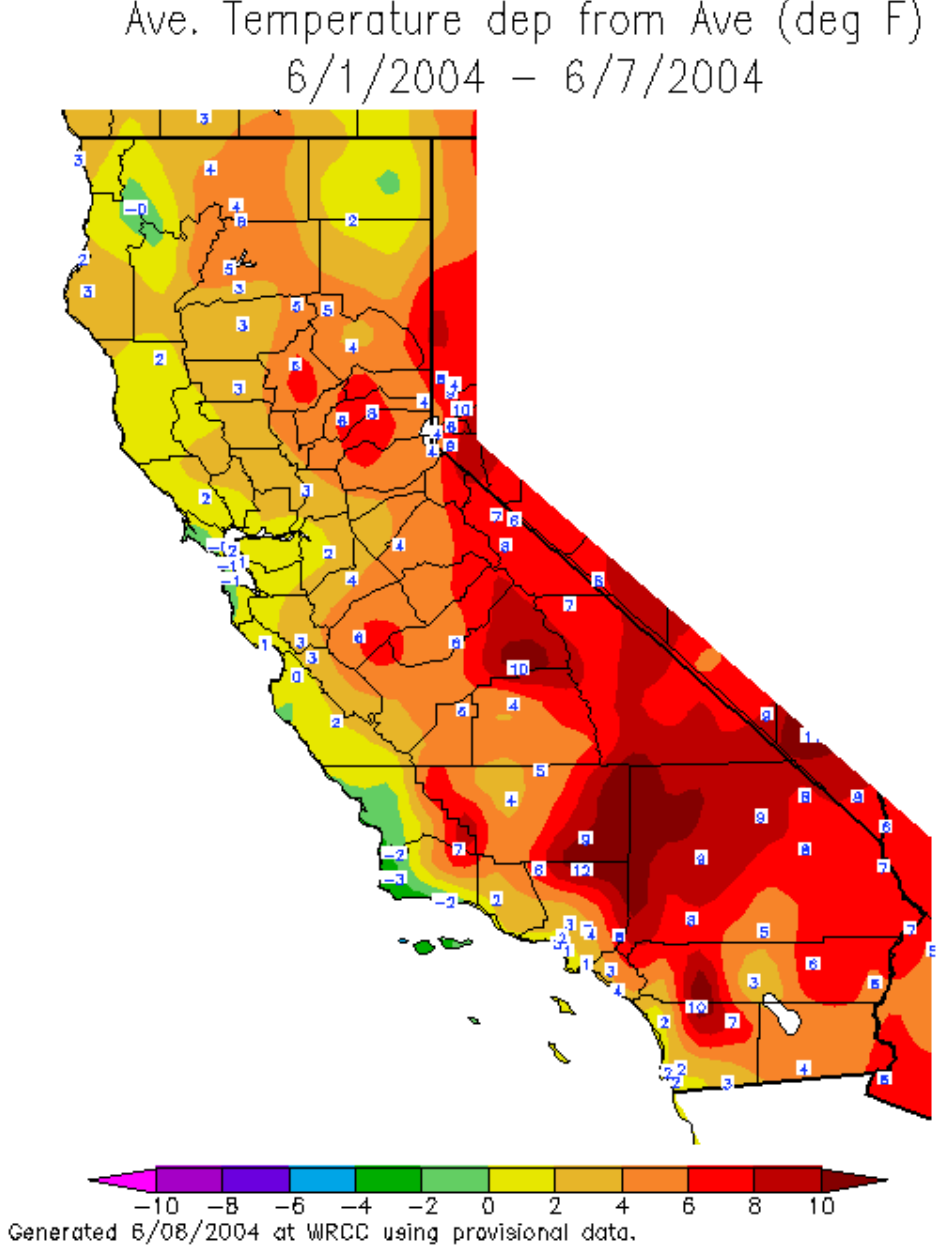




Approximately 650 maps for California, updated daily.

California Climate Data Archive

Western Regional Climate Center
Scripps Institution of Oceanography
California Energy Commission

Data & Products Page

COMING SOON: Daily COOP Data Download Tool

Move cursor over a dot to see the station name and network. Click on a station to view available data and products.

Select a network map to view available stations:

Northern California
- NWS Cooperative (COOP)
- SNOTEL
- RAWS
- Surface Airways (SAO)/METAR
- CIMIS
- CDEC
- NOAA buoys
- All Networks

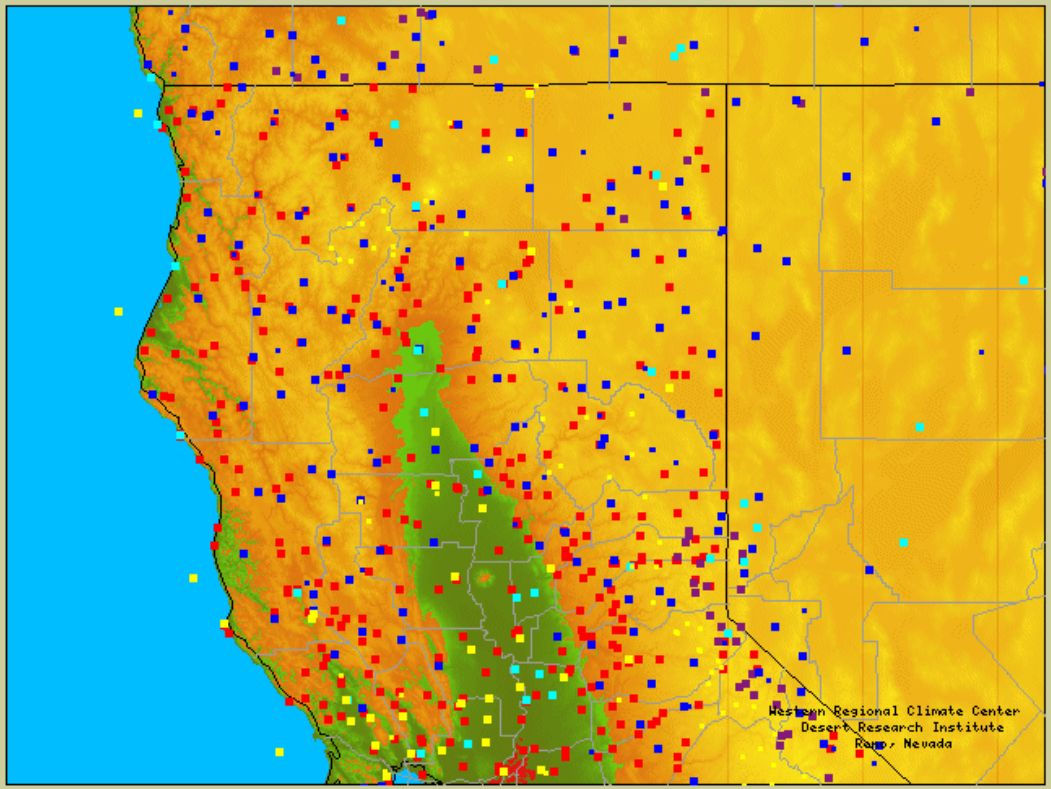
Central California
- NWS Cooperative (COOP)
- SNOTEL
- RAWS
- Surface Airways (SAO)/METAR
- CIMIS
- CDEC
- NOAA buoys
- All Networks

Southern California
- NWS Cooperative (COOP)
- RAWS
- Surface Airways (SAO)/METAR
- CIMIS
- CDEC
- NOAA buoys
- All Networks

Network Descriptions

Climate Anomaly Maps (updated daily)

CA Comparative Data



COOP stations have priority if they are co-located with a station from another network. Please select an individual network on the left.

If you need data from a station or network that is currently unavailable or have questions, use this Feedback/Request Form.

COLOR KEY:
RED = NWS COOP
PURPLE = SNOTEL
DARK BLUE = RAWS
LIGHT BLUE = SURFACE AIRWAYS
YELLOW = MISC (CURRENTLY CIMIS, CDEC, BUOYS)

Summary of the Day Data Lister (SOD-TD3200)

Available data: Period of Record.

Select the station:

040006 ABBOTT MINE CALIFORNIA

Start Date (YYYYMMDD): 20031001

End Date (YYYYMMDD): 20040609

For Period of available data, check the station inventory

Password Access to data listing

Raw Data access policy.

Select Elements to List:

- [x] Elements 1-5
- [ ] 1 - Max. Temperature
- [ ] 2 - Min. Temperature
- [ ] C - Ave. Temperature
- [ ] 3 - Precipitation
- [ ] 4 - Snowfall
- [ ] 5 - Snow Depth
- [ ] C - Heating Degree Days
- [ ] C - Cooling Degree Days
- [ ] C - Growing Degree Days (base 40)
- [ ] C - Growing Degree Days (base 50)

C - Calculated element

Get Listing.

Units: (•) English ( ) Metric

Output Format: ( ) Delimited (.dat) ( ) Columnar .(txt) ( ) Excel (.xls) (•) html (.html)

Field Delimiter: (•) comma (,) ( ) colon (:) ( ) pipe (|) ( ) space ( ) ( ) tab (^t)

Include Data Flags: ( ) Yes (•) No

Include Data Flags Description: ( ) Yes (•) No

Date format: (•) YYMMDDhhmm ( ) YYYYMMDDhhmm ( ) MM/DD/YYYY hh:mm ( ) iii YYYY hhmm ( ) MM-DD-YYYY hh:mm ( ) YYYY-MM-DD hh:mm

Represent missing data as: ( ) M ( ) m ( ) (blank space) ( ) ** ( ) -- ( ) -99 ( ) -999 (•) -9999. ( ) 99999

Summary of the Day Data Lister (SOD-TD3200)

… Continued …

Get Listing.

Units: (•) English ( ) Metric

Output Format: ( ) Delimited (.dat) ( ) Columnar (.txt) ( ) Excel (.xls) (•) html (.html)

Field Delimiter: (•) comma (,) ( ) colon (:) ( ) pipe (|) ( ) space ( ) ( ) tab (^t)

Include Data Flags: ( ) Yes (•) No

Include Data Flags Description: ( ) Yes (•) No

Date format: (•) YYMMDDhhmm ( ) YYYYMMDDhhmm ( ) MM/DD/YYYY hh:mm ( ) iii YYYY hhmm ( ) MM-DD-YYYY hh:mm ( ) YYYY-MM-DD hh:mm

Represent missing data as: ( ) M ( ) m ( ) (blank space) ( ) ** ( ) -- ( ) -99 ( ) -999 (•) -9999. ( ) 99999

Sub interval windows:
Examples of Sub interval windows use.

Select the
Starting Date:
Month Day

January 01

Select the
Ending Date:
Month Day

December 31 (inclusive)

Disclaimer: As with all summarizing products, understanding the nature of the original data is important to understand the results of the summarized product. Any questions about the nature of the original data or the instrumentation used to collect the original data may be directed to the
Western Regional Climate Center, wrcc@dri.edu

Get Listing.

Daily Products
Weekly Products
Monthly Products
Seasonal Products
Other Sources
Climate Watch Archive
Climate Anomaly Maps (updated daily)

CLIMATE MONITORING & FORECASTS

April 2004 Climate Watch

Read the full newsletter here: Word Format or PDF format

Highlights:
- Monthly Weather Summary by Bill Mork, California Department of Water Resources
- Feature Story: Vegetation Adaptation and Migration
- Monthly Weather Data and Recent Climate Maps
- Climate Forecasts and Outlooks: ENSO, Fire, Hydrology

Daily Products:
CDEC Snow Water Equivalent
CDEC Snow Sensor Reports
CDEC Snow Water Content graphs
SNOTEL data & graphs via WRCC
N. California RAWS data plots from WRCC
S. California RAWS data plots from WRCC
Western Region Climate Anomaly Maps

NWS daily summaries: Eureka | Hanford | Reno | Sacramento | San Diego | San Francisco/Monterey | Los Angeles | Las Vegas | Phoenix

Weekly Products:
NRCS Weekly Snowpack/Drought Updates
National Agriculture Statistics Service/Weekly Weather & Crop Bulletin
Drought Monitor
CDEC Executive Update of Hydrologic Conditions
CPC ENSO (El Nino/Southern Oscillation) Update

Monthly Products:
West-wide Precipitation Summaries
CDEC Water Supply Conditions Narrative Summary
CPC ENSO Discussion
CPC Long-lead climate outlooks (discussion & maps)

January through June snow products:
Snow Course monthly measurements from CDEC

Other Sources and Products:
Climate Diagnostics Center (CDC)
Climate Prediction Center (CPC)
Climate Division Temp & Precip time series plots (WRCC)
Yosemite National Park Monitoring (WRCC)
Channel Islands National Park Monitoring (WRCC)

Page last updated 5/20/04.

California Climate Watch

A monthly newsletter monitoring California climate

California Climate Watch

A monthly newsletter monitoring California climate

May 2004
http://www.calclim.dri.edu

Summary of the Month

The Golden State was again warmer and drier than average in May 2004, continuing the statewide trends for the third month in a row. The average temperature was 63.8 degrees, 1.6 above normal. Maximum temperatures were almost 2 degrees above average and minimum temperatures were just more than 1 degree over May's average.

Statewide precipitation was well below average for the month. Northern portions of the state fared better than the south, averaging more than 90% of normal in the Sacramento drainage. No precipitation was recorded in most Southland locations, signaling the start of the dry season.

May 14 brought record heat, with 116 record high temperatures set in the 4 day period. 102 of those records were in the southern regions. A sample of records on the 3rd include: 113 at Death Valley, 107 at Needles, 105 at Blythe and 104 at Imperial. Further north, temperatures reached the century mark at Bakersfield (101) and Fresno (100) on the 4th.

The first week of the month went out with a bang with thunderstorms in the north. Precipitation for the weekend of May 7-9 totaled over one inch in some locations, including 1.28 at Lassen Lodge and 1.17 at Stouts Meadow. 3.84 inches were reported for the 3-day period in Mineral after heavy thunderstorms on the 7th.

Mid-month brought little activity weather-wise, with little or no precipitation falling in most regions and near- to above-average temperatures.

Starting on the 17th, rain was again welcomed to NorCal, and temperatures started falling.

WEATHER continued on page 2.

Editor: Laura Edwards
WRCC/DRI
2215 Raggio Parkway
Reno, NV 89512
Laura.Edwards@dri.edu

What is California's Coastal Future?

By Laura Edwards

Pacifica, California, was the center of attention in early 1998 as ENSO storms roared through, erasing more than 30 feet of property for some cliff-side residents in a brief two week period. Ten homes were "red-flagged" and considered unsafe for habitation. Average coastal erosion rates in this region of central California had been 2 feet per year for almost 50 years previous to this event. Will this episodic coastal erosion plague California in the future?

LEFT: Pacifica, CA coastline, January 8, 1998. **http://walrus.wr.usgs.gov/elnino/coastal/pacifica.html**

Sea-cliff erosion rates in California average 0 to more than 30 cm per year (1), but in the winter of 1997-98 ENSO enhanced typical storminess and high tides altered the cliffs and beaches. Several studies have shown that "the majority of sea-cliff erosion occurs during infrequent, energetic storm events" (1), such as during ENSO.

The costs of coastal and beach erosion are high. 86%, or 946 miles, of California's coastline is actively eroding. With 80% of the state's population living less than 50 km from the coast (2), there are a large number of homes and businesses at risk of being lost to the sea in the next 60 years. In addition, 32 million out-of-state vacationers head to the Pacific beach annually, bringing in billions of dollars of revenue (2). As a result of population growth and an ever-growing number of visitors, local, regional and state government have taken several measures to maintain beaches and coastal areas, including beach nourishment plans.

RIGHT: Pacifica, CA coastline, February 17, 1998. **http://walrus.wr.usgs.gov/elnino/coastal/pacifica.html**

EROSION continued on page 2.

- **Monthly online newsletter highlighting recent climate in California**
- **Purpose: climate monitoring for all audiences**
- **"Feature story" of a climate research topic, guest writers**
- **Monthly weather summary by Bill Mork of California Dept. of Water Resources**
- **Weather data for the month**
- **Outlooks and forecasts**
- **Recent climate maps**

1883 1985

California Climate Watch

A monthly newsletter monitoring California climate

February 2004

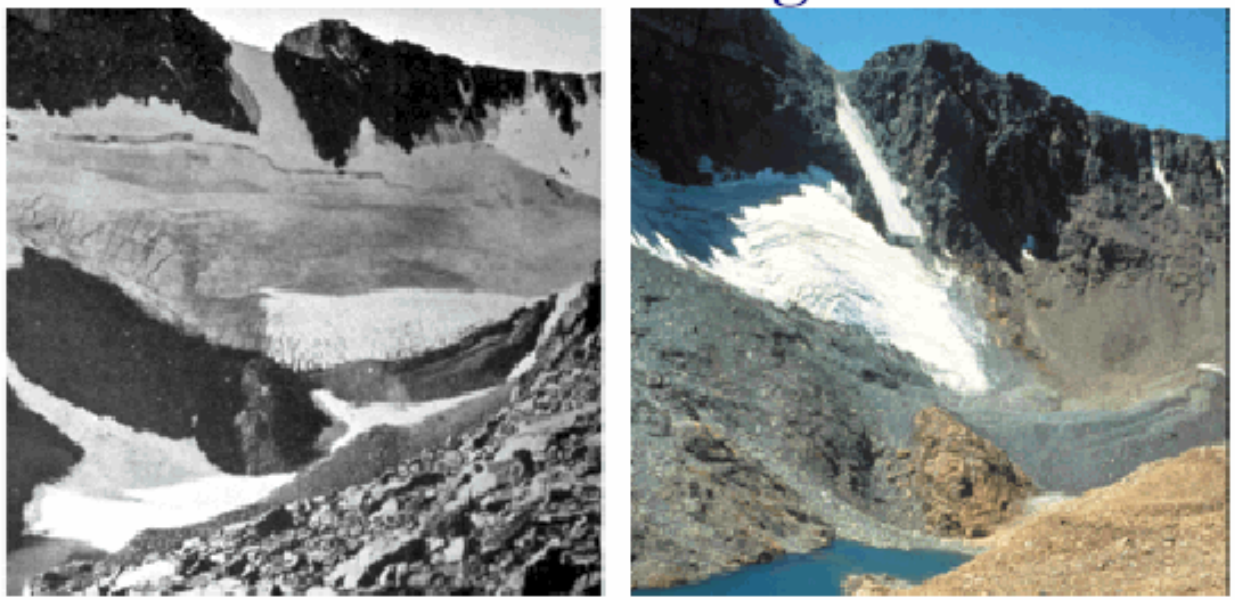
http://www.wrcc.dri.edu/ccda/css/cssindex.html

Summary of the Month

On February 2, Punxsutawney Phil predicted 6 more weeks of winter... as it turns out, he was right, at least where California is concerned. The month came and went with a bang, with DWR's North Sierra 8-station precipitation index ending the month at 14.4", 180% of average. Above average precipitation and lower than average temperatures were the trend for the month.

The first days of February brought a strong cold front that plowed through California, with heavy rain and winter storm warnings covering the state. Precipitation varied from 0.5 to over 3.5 inches for the 2-day event. Ojai tied a record low of 27, and Fresno and Bakersfield had record precipitation on the 2nd.

Glaciers as Climate Change Indicators



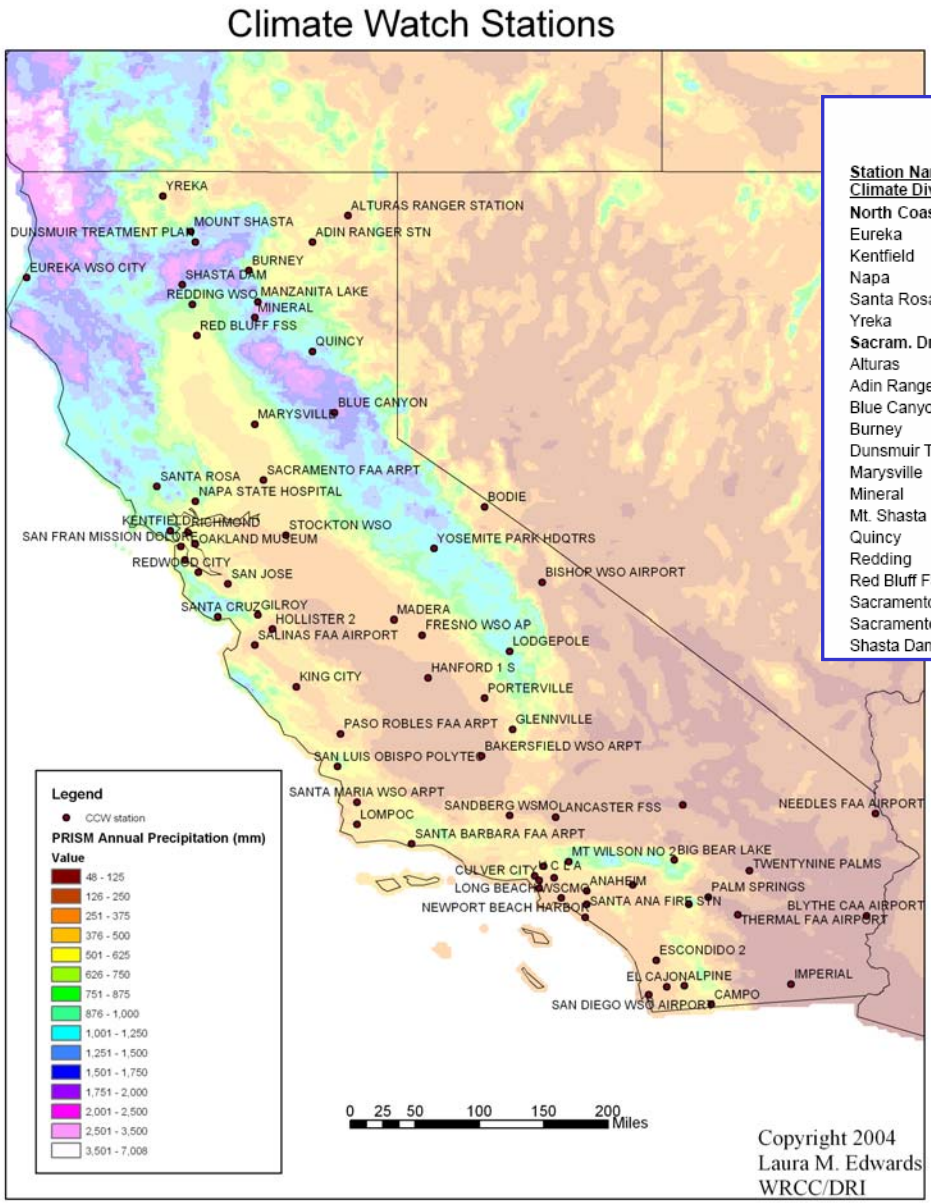
20th century retreat. *Photographs of the Dana Glacier, Sierra Nevada, California (3660 m, 37° 54' N, 119° 13' W) in 1883 (**left**) and 1985 (**right**) show how the glacier has retreated since the late 19th century.*
CREDIT: LEFT, U.S. GEOLOGICAL SURVERY; RIGHT, SCOTT STINE
Science, Volume 288, Number 5470, Issue of 26 May 2000, p. 1353.

By Laura Edwards

Whether or not California's climate is changing is a question to which many want the answer. One way in which climate can be monitored to aid in answering this question is through changes in the state's glaciers.

California Climate Watch

A monthly newsletter monitoring California climate



May Station Data

All data is provisional and subject to change.

Station Name/ Climate Division	TA	DA	TX	DX	MGX	TN	DN	MGN	PMO	PDP	PCT	MGP
North Coast	***59.7***	***0.6***	***72.1***	***0.5***	***1***	***47.3***	***0.6***	***1***	***0.46***	***-0.66***	***34***	***1.2***
Eureka	56.7	3.1	63.2	3.6	1	50.2	2.6	1	1.37	-0.25	85	0
Kentfield	61.3	-1.2	72.3	-3.7	1	50.3	1.4	1	0.10	-1.10	8	1
Napa	63.3	1.2	76.3	0.9	1	50.2	1.4	1	0.05	-0.73	6	2
Santa Rosa	61.2	-0.3	74.6	0.4	1	47.7	-1.0	1	0.03	-0.80	4	1
Yreka	56.1	0.1	73.9	1.3	1	38.2	-1.2	1	0.75	-0.40	65	2
Sacram. Drainage	***59.9***	***0.8***	***74.1***	***0.5***	***0.5***	***45.6***	***1.2***	***0.5***	***1.70***	***0.00***	***94***	***0.79***
Alturas	51.4	0.0	67.9	-0.9	0	34.9	0.8	0	1.61	0.29	122	0
Adin Ranger Stn	53.3	0.0	68.7	0.9	0	37.9	-1.0	0	4.71	3.13	298	2
Blue Canyon	53.1	0.4	60.1	-0.9	0	46.1	1.8	0	1.27	-1.66	43	0
Burney	55.4	2.8	72.4	0.7	1	38.5	4.9	1	3.52	1.88	215	1
Dunsmuir Treatme	58.8	1.2	74.9	1.0	2	42.7	1.4	2	1.00	-1.55	39	3
Marysville	68.1	-0.4	83.5	0.8	0	52.6	-1.7	0	0.05	-0.71	7	0
Mineral	49.4	1.7	64.0	1.9	4	34.8	1.5	4	5.55	2.58	187	4
Mt. Shasta	54.7	1.5	68.6	1.3	0	40.8	1.8	0	1.35	-0.52	72	0
Quincy	56.0	0.4	73.0	-1.6	0	39.1	2.4	0	1.41	-0.12	92	1
Redding	68.2	2.0	81.8	1.1	0	54.5	2.9	0	1.24	-0.42	75	0
Red Bluff FSS	67.9	-0.1	82.1	0.3	0	53.7	-0.4	0	0.97	-0.12	89	0
Sacramento AP	66.9	1.5	80.8	0.8	0	52.9	2.0	0	0.17	-0.36	32	0
Sacramento City	68.6	0.7	82.5	0.9	0	54.7	0.6	0	0.08	-0.52	13	0
Shasta Dam	66.2	0.1	77.7	0.3	0	54.7	0.0	0	0.87	-1.93	31	0

3 Criteria for selection:

- Long history (at least 30 years)

- Reliable, quick data availability

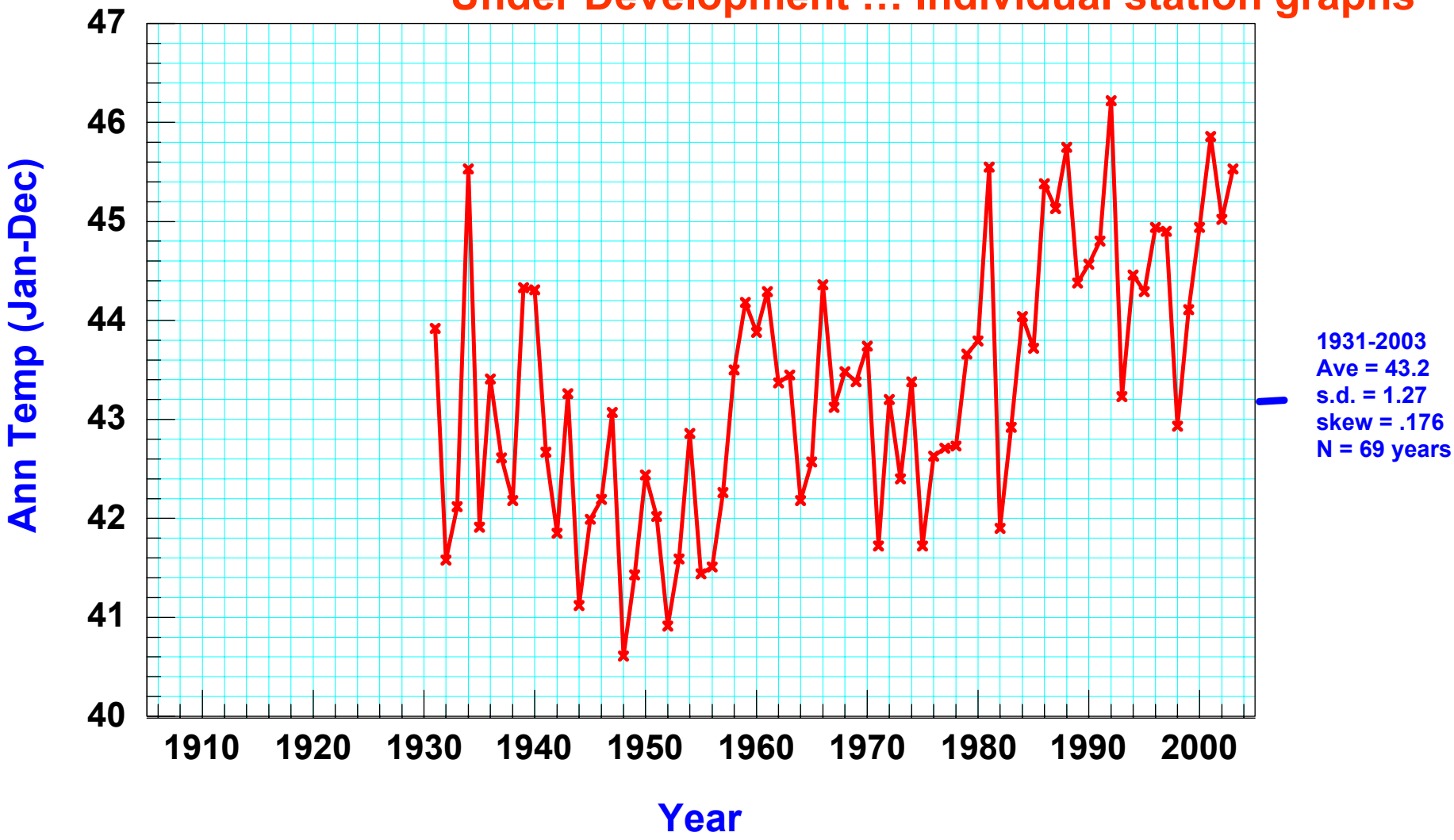
- Location

CalClim

www.calclim.dri.edu

Tahoe City, CA. Coop station. Mean Annual Temperature.
Units: Degrees F.

Under Development … Individual station graphs



California Climate Data Archive

Western Regional Climate Center
Scripps Institution of Oceanography
California Energy Commission

Highlights

Journals & media

Articles from authors (PDF's or HTML)

Research groups/organizations

Regional Climate Research Groups

(maybe occasionally highlight a current research topic/group on CA issues)

Scripps Climate Research Division (CRD)
Scripps California Applications Program (CAP)
Scripps CRD Experimental Climate Prediction Center (ECPC)
Climate Diagnostics Center (CDC)
Climate Prediction Center (CPC) UC-Davis REMOTE program
California Water Resources Research & Application Center
JPL/UCD Lake Tahoe Limnology
Livermore Lab Heat Island Group
Berkeley Lab Earth Sciences Division: Climate Change & Carbon Management Program
Berkeley Lab Hydroclimate and Impacts Research
White Mountain Research Center
Berkeley Regional Climate System Model
University of California Agriculture & Environmental Resources
Climate Modeling & Diagnostics Laboratory (CMDL)
JPL Air-Sea Interaction & Climate Team
UCLA Climate Systems Interaction Group
UC Santa Cruz Paleoclimate and Climate Change Research Group
Program for Climate, Ecosystem and Fire Applications (CEFA)
MAPSS Vegetation Modelling
Climate Assessment for the Southwest (CLIMAS)
Regional Integrated Sciences and Assessments (RISA)

Page last updated 5/20/04.

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California Climate Data Archive

Western Regional Climate Center
Scripps Institution of Oceanography
California Energy Commission

Categories:
- Articles and climate news
- Other Climate Info Sources
- Water & Snow
- Weather
- Coastal Weather & Climate
- Other Sites of Interest

Western Regional Climate Center

Scripps' Climate Research Division

California Energy Commission

Articles and climate news:

CAP/CCCC Reading Room

Globe Grows Darker as Sunshine Diminishes 10% to 37% (New York Times, 5/13/04)
The Arid West (New York Times editorial, 5/10/04)
As The West Goes Dry (Science, 2/20/04)
Bighorn sheep threatened by climate change, finds new study (UC-Berkeley News, 2/10/04)
Growing California Glaciers and Carbon Calculations (Alaska Science Forum, 12/25/03)
Sierra Nevada Glaciers in Retreat (LA Times, 10/12/03)

Climate Info Sources (see also "Climate Research" link above)

California Data Exchange Center (CDEC)
California Irrigation Management Information System (CIMIS)
National Climatic Data Center
Scripps' California Applications Program (CAP)/California Climate Change Center (CCCC)
Climate Diagnostics Center
Climate Prediction Center

Water & Snow Links

USGS Water main page, including streamflow
- Current California Streamflow California Department of Water Resources

California Snow Survey
California NRCS
USGS California Water Page
California Water Plan

Weather Links

USDA Weekly Weather & Crop Bulletin
Intellicast
Daily Weather Maps
National Weather Service main page
California National Weather Service offices:
- Medford, OR
- Eureka, CA
- Sacramento, CA
- Reno, NV
- San Francisco Bay Area/Monterey, CA
- San Joaquin Valley/Hanford, CA
- Las Vegas, NV
- Los Angeles/Oxnard, CA
- San Diego, CA
- Phoenix, AZ

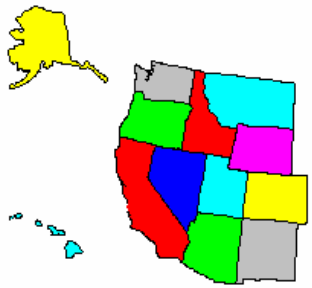
Coastal Weather & Climate

NOAA's Coastal Services Center (CSC)

Data Sets

- NOAA
  - Cooperative
  - Surface Airways (NWS, FAA, ASOS, AWOS)
  - Upper Air
  - Coastal and buoys
- USDA Snotel
- Interagency RAWS
- Climate Reference Network
- Cal Dept Water Resources / Snow Survey & Precip
- Cal CIMIS (Cal Irrigation Management & Info System)
- Cal Air Resources Board and Air Quality Mgmt Districts
- Specialized mesonets and California projects
- Research data sets
- *National Cooperative Mesonet – ISOS: Int Sfc Obs Sys

Derived, gridded, analyzed data under consideration



Western Regional Climate Center

2215 Raggio Parkway
Reno, Nevada 89512

Desert Research Institute

Phone: (775) 674-7010
Fax: (775) 674-7016

e-mail: wrcc@dri.edu

Site Map

Historical Climate Information
Western U.S. Historical Summaries; Precipitation Maps; Station Inventories; Wind and Evaporation Data; Coastal Water Table; etc.

Current Observations and Forecasts
Nat'l Weather Service Current and Past 24-hour Reports; Snotel; Climate Prediction Center Outlooks; Satellite and Radar Imagery; etc.

WRCC Projects
El Nino & La Nina; CEMP; WET; BLM RAWS; Current Weather Plots; Photo Gallery; Webcam; etc.

Climate Monitoring
Anomalies (Snotel & Airports); SPI; Product List; WGA data and information; etc.

More Climate Information
Pricing and Formats; Solar Radiation (U of Oregon); Sunrise/Sunset Information (USNO); Divisional Climate Plots; etc.

Educational and Travel Pages
Terms; More about Weather and Climate - for teachers and kids! Climate for resorts and Nat'l parks around the West.

Non-WRCC Climate Resources
National Climatic Data Center; Climate Prediction Center; National Drought Mitigation Center; CEFA; etc.

About the WRCC
Staff; Funding; Overview of WRCC; DRI Home Page; INTERNAL; etc.

WRCC Supports a Three-Partner National Climate Services Program - the Partners Include:
National Climatic Data Center (NCDC), Regional Climate Centers (RCC's), and State Climate Offices.

This is the new WRCC web page, you can still go to the old WRCC home page.

A busy web site … about 92,000 accesses per day in April 2004, and 98 Mb / day of data / products. Driven largely by user requests.

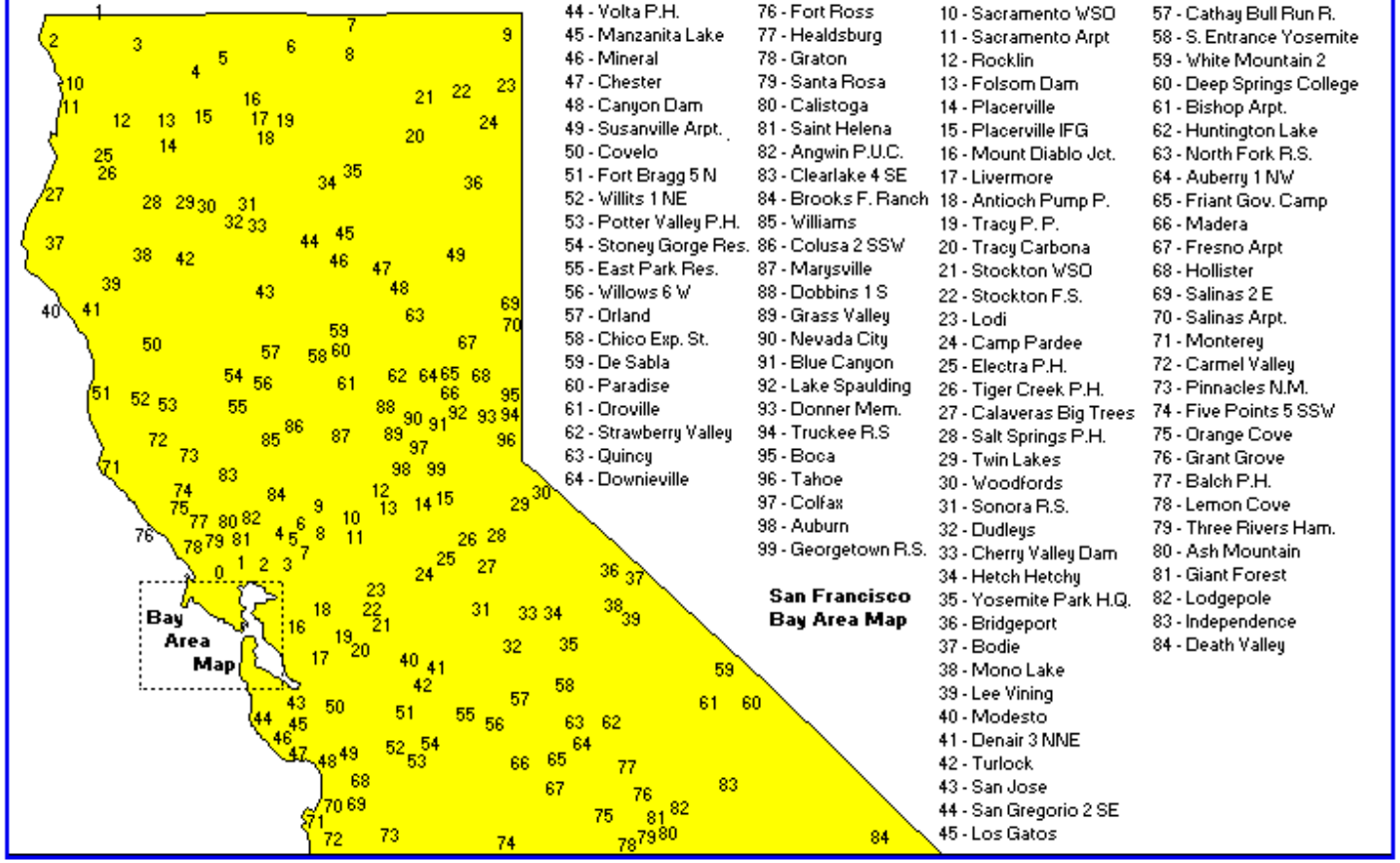
Northern California Climate Summaries

Western U.S. map | Home Page

Back to: Alphabetical Station List

- Adin Ranger Station
- Alderpoint
- Alturas Ranger Station
- Angwin Pac Union Col
- Antioch Pump Plant 3
- Ash Mountain
- Auberry 1 NW
- Auburn
- Balch Power House
- Ben Lomond 4
- Big Bar Ranger Station
- Bishop WSO
- Blue Canyon
- Boca
- Bodie
- Bowman Dam
- Bridgeport
- Brooks Farnham Ranch
- Burney
- Calaveras Big Trees
- Calistoga
- Callahan
- Camp Pardee
- Canby Ranger Station
- Canyon Dam
- Carmel Valley
- Cathay Bull Run Ranch
- Cecilville 1 SE
- Cedarville
- Cherry Valley Dam
- Chester
- Chico Experiment Station

2 - Crescent City
3 - Happy Camp R.S.
4 - Fort Jones R.S.
5 - Yreka
6 - Mount Hebron R.S.
7 - Tulelake
8 - Lava Beds N.M.
9 - Fort Bidwell
10 - Klamath
13 - Sawyers Bar R.S.
14 - Cecilville 1 SE
15 - Callahan
16 - Weed F. D.
17 - Mount Shasta
18 - Dunsmuir T. P.
19 - Mc Cloud
20 - Adin R.S.
21 - Canby R.S.
24 - Jess Valley
25 - Hoopa
26 - Willow Creek
27 - Eureka
28 - Big Bar R.S.
29 - Weaverville R.S.
30 - Trinity River H.
31 - Shasta Dam
32 - Whiskeytown R.
36 - Termo 1 E
37 - Scotia
38 - Forest Glen
39 - Alderpoint
40 - Shelter Cove A.
41 - Richardson Gr.
42 - Harrison G. R.S.
43 - Red Bluff
44 - Volta P.H.
45 - Manzanita Lake
46 - Mineral
47 - Chester
48 - Canyon Dam
49 - Susanville Arpt.
50 - Covelo
51 - Fort Bragg 5 N
52 - Willits 1 NE
53 - Potter Valley P.H.
54 - Stoney Gorge Res.
55 - East Park Res.
56 - Willows 6 W
57 - Orland
58 - Chico Exp. St.
59 - De Sabla
60 - Paradise
61 - Oroville
62 - Strawberry Valley
63 - Quincy
64 - Downieville
67 - Portola
68 - Sierraville R.S.
69 - Doyle
70 - Doyle 4 SSE
71 - Point Arena
72 - Ukiah
73 - Lakeport
74 - Cloverdale 3 S
75 - Warm Springs
76 - Fort Ross
77 - Healdsburg
78 - Graton
79 - Santa Rosa
80 - Calistoga
81 - Saint Helena
82 - Angwin P.U.C.
83 - Clearlake 4 SE
84 - Brooks F. Ranch
85 - Williams
86 - Colusa 2 SSW
87 - Marysville
88 - Dobbins 1 S
89 - Grass Valley
90 - Nevada City
91 - Blue Canyon
92 - Lake Spaulding
93 - Donner Mem.
94 - Truckee R.S
95 - Boca
96 - Tahoe
97 - Colfax
98 - Auburn
99 - Georgetown R.S.
1 - Sonoma
2 - Napa State H.
3 - Fairfield
4 - Markley Cove
5 - Lake Solano
6 - Winters
7 - Vacaville
8 - Davis 1 WSW
9 - Woodland
10 - Sacramento WSO
11 - Sacramento Arpt
12 - Rocklin
13 - Folsom Dam
14 - Placerville
15 - Placerville IFG
16 - Mount Diablo Jct.
17 - Livermore
18 - Antioch Pump P.
19 - Tracy P. P.
20 - Tracy Carbona
21 - Stockton WSO
22 - Stockton F.S.
23 - Lodi
24 - Camp Pardee
25 - Electra P.H.
26 - Tiger Creek P.H.
27 - Calaveras Big Trees
28 - Salt Springs P.H.
29 - Twin Lakes
30 - Woodfords
31 - Sonora R.S.
32 - Dudleys
33 - Cherry Valley Dam
34 - Hetch Hetchy
35 - Yosemite Park H.Q.
36 - Bridgeport
37 - Bodie
38 - Mono Lake
39 - Lee Vining
40 - Modesto
41 - Denair 3 NNE
42 - Turlock
43 - San Jose
44 - San Gregorio 2 SE
45 - Los Gatos
48 - Watsonville Waterworks
49 - Gilroy
50 - Mount Hamilton
51 - Newman
52 - San Luis Dam
53 - Los Banos Det. Res.
54 - Los Banos
55 - Merced Arpt.
56 - Le Grand
57 - Cathay Bull Run R.
58 - S. Entrance Yosemite
59 - White Mountain 2
60 - Deep Springs College
61 - Bishop Arpt.
62 - Huntington Lake
63 - North Fork R.S.
64 - Auberry 1 NW
65 - Friant Gov. Camp
66 - Madera
67 - Fresno Arpt
68 - Hollister
69 - Salinas 2 E
70 - Salinas Arpt.
71 - Monterey
72 - Carmel Valley
73 - Pinnacles N.M.
74 - Five Points 5 SSW
75 - Orange Cove
76 - Grant Grove
77 - Balch P.H.
78 - Lemon Cove
79 - Three Rivers Ham.
80 - Ash Mountain
81 - Giant Forest
82 - Lodgepole
83 - Independence
84 - Death Valley



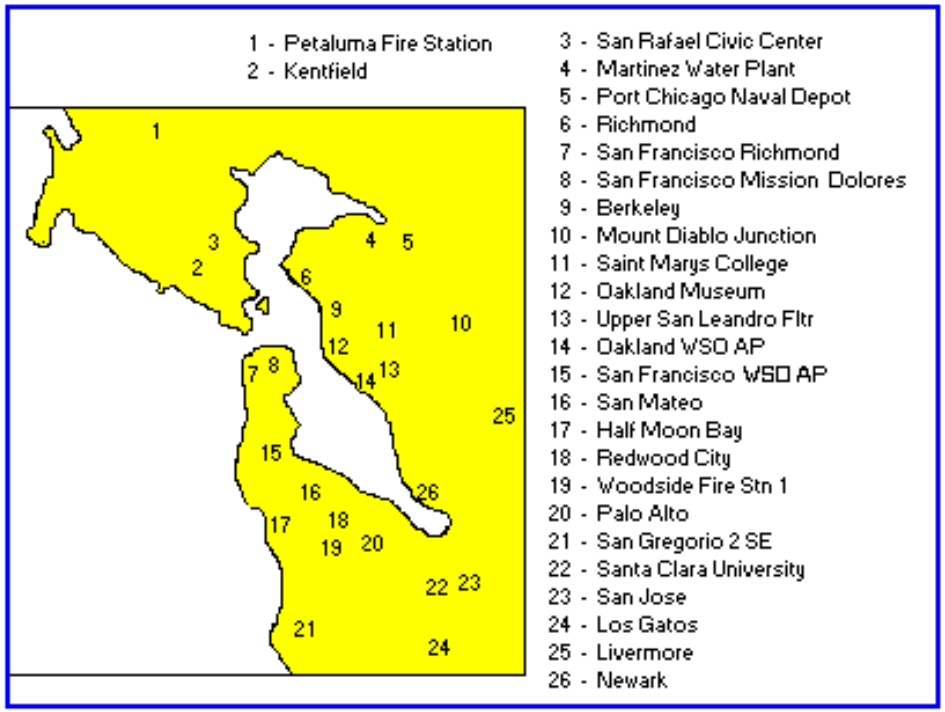
San Francisco Bay Area Map

San Francisco Bay Area, California Climate Summaries

Back to: Western U.S. map Home Page
Alphabetical Station List

- Berkeley
- Half Moon Bay
- Kentfield
- Livermore
- Los Gatos
- Martinez Water Plant
- Mount Diablo Junction
- Newark
- Oakland Museum
- Oakland WSO Airport
- Palo Alto
- Petaluma F.S.
- Port Chicago Naval Dep.
- Redwood City
- Richmond
- Saint Marys College
- San Francisco WSO Airport
- San Francisco Mission Dolores
- San Francisco Richmond
- San Gregorio 2 SE
- San Jose
- San Mateo
- San Rafael Civic Center
- Santa Clara University
- Upper San Leandro Fltr
- Woodside Fire Station 1

...back to Home Page.



...back to Home Page.

Western Regional Climate Center, wrcc@dri.edu

Back to:

State Map | Western U.S. map | Home Page

NOTE:
To print data frame (right side), click on right frame before printing.

1971 - 2000

- Daily Temp. & Precip.
- Daily Tabular data (~23 KB)
- Monthly Tabular data (~1 KB)
- NCDC 1971-2000 Normals (~3 KB)

1961 - 1990

- Daily Temp. & Precip.
- Daily Tabular data (~23 KB)
- Monthly Tabular data (~1 KB)
- NCDC 1961-1990 Normals (~3 KB)

Period of Record

- Station Metadata
- Station Metadata Graphics

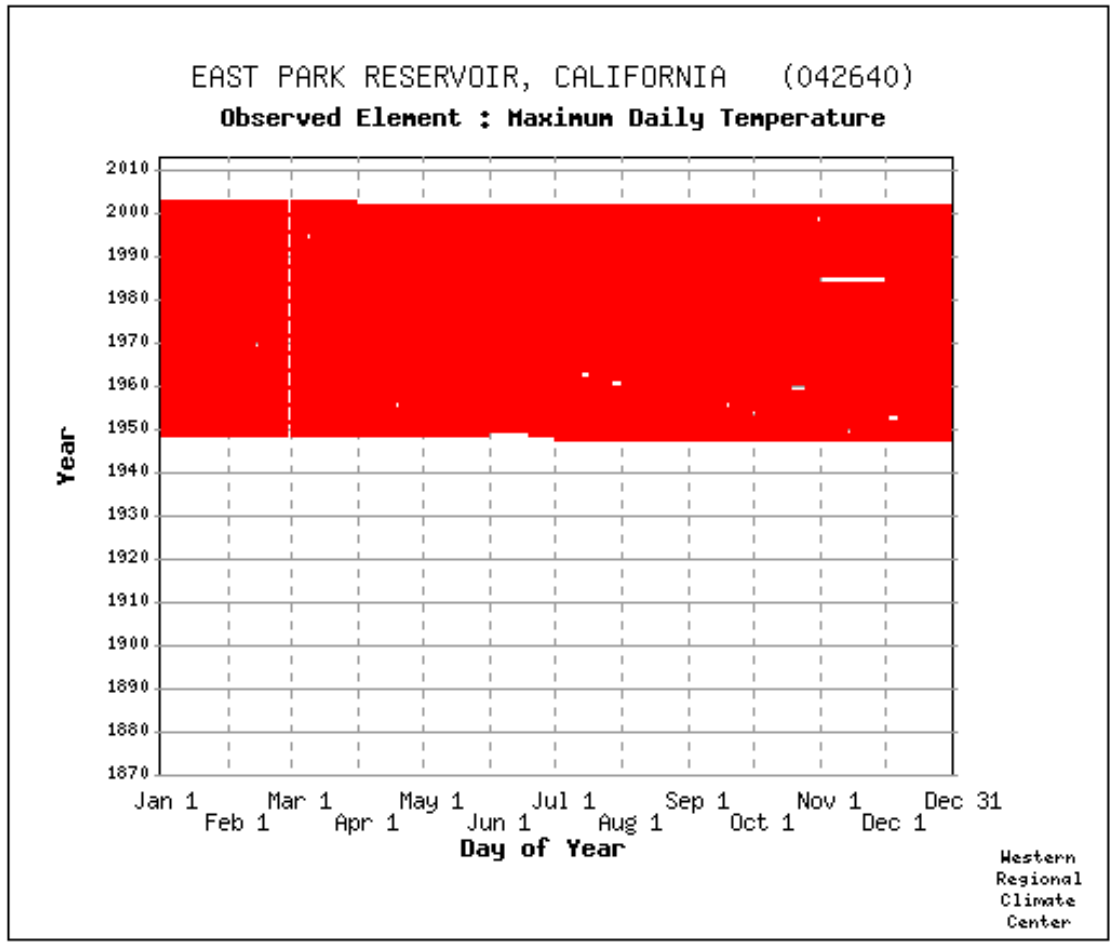
General Climate Summary Tables
- Temperature
- Precipitation
- Heating Degree Days
- Cooling Degree Days
- Growing Degree Days

Temperature
- Daily Extremes and Averages
- Spring 'Freeze' Probabilities
- Fall 'Freeze' Probabilities

EAST PARK RESERVOIR, CALIFORNIA

Station Metadata

Color indicates dates with an observation for the specific element.
White indicates dates with no observation for the specific element.
This indicates only the availability of data, not its quality.
Last Updated May., 2003.



State Map | Western U.S. map | Home Page

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- 'Freeze Free' Probabilities

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- Station Metadata Graphics

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- Heating Degree Days
- Cooling Degree Days
- Growing Degree Days

Temperature
- Daily Extremes and Averages
- Spring 'Freeze' Probabilities
- Fall 'Freeze' Probabilities
- 'Freeze Free' Probabilities
- Monthly Temperature Listings
  - Average
  - Average Maximum
  - Average Minimum
  - Extreme Maximum(*)
  - Extreme Minimum(*)

Precipitation
- Monthly Average
- Daily Extreme and Average
- Daily Average
- Precipitation Probability by Duration.
- Precipitation Probability by Quantity.
- Monthly Precipitation Listings
  - Monthly Totals
  - Daily Extreme(*)

Snowfall
- Daily Extreme and Average
- Daily Average
- Monthly Snowfall Listings
  - Monthly Totals

Snowdepth
- Daily Extreme and Average
- Daily Average

Precipitation
- Monthly Average
- Daily Extreme and Average
- Daily Average
- Precipitation Probability by Duration.
- Precipitation Probability by Quantity.
- Monthly Precipitation Listings
  - Monthly Totals
  - Daily Extreme(*)

Snowfall
- Daily Extreme and Average
- Daily Average
- Monthly Snowfall Listings
  - Monthly Totals

Snowdepth
- Daily Extreme and Average
- Daily Average

Heating Degree Days
- Daily Average
- Monthly HDD Listings
  - Monthly Totals(*)

Cooling Degree Days
- Daily Average
- Monthly CDD Listings
  - Monthly Totals(*)

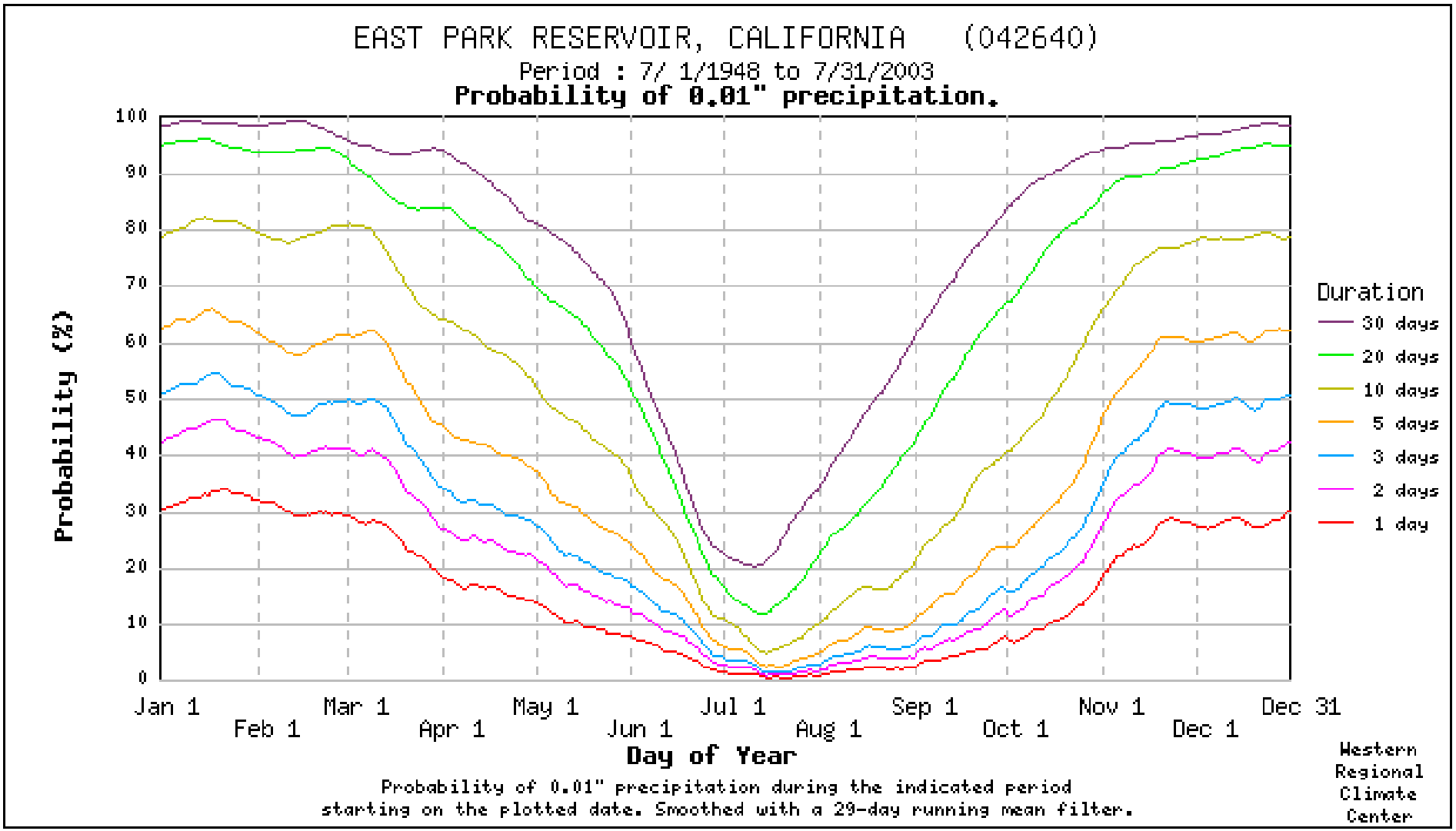
Growing Degree Days
- Monthly GDD Listings
  - Monthly Total Base 40 (*)
  - Monthly Total Base 50 (*)

Period of Record Data Tables
- Daily Summary Stats (~55 KB)
- Monthly Tabular data (~2 KB)

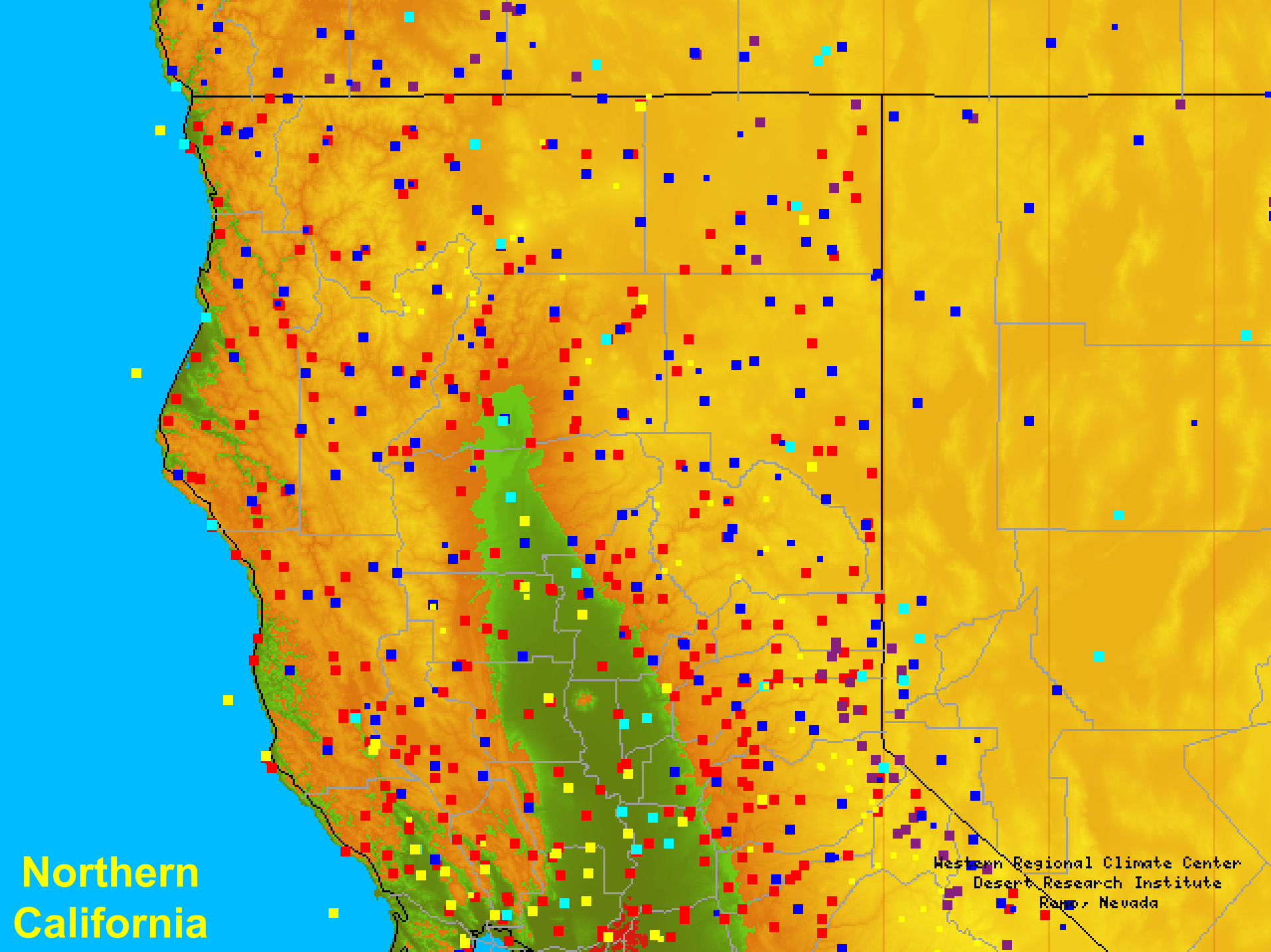
Daily Data
- Graph and Lister (*)

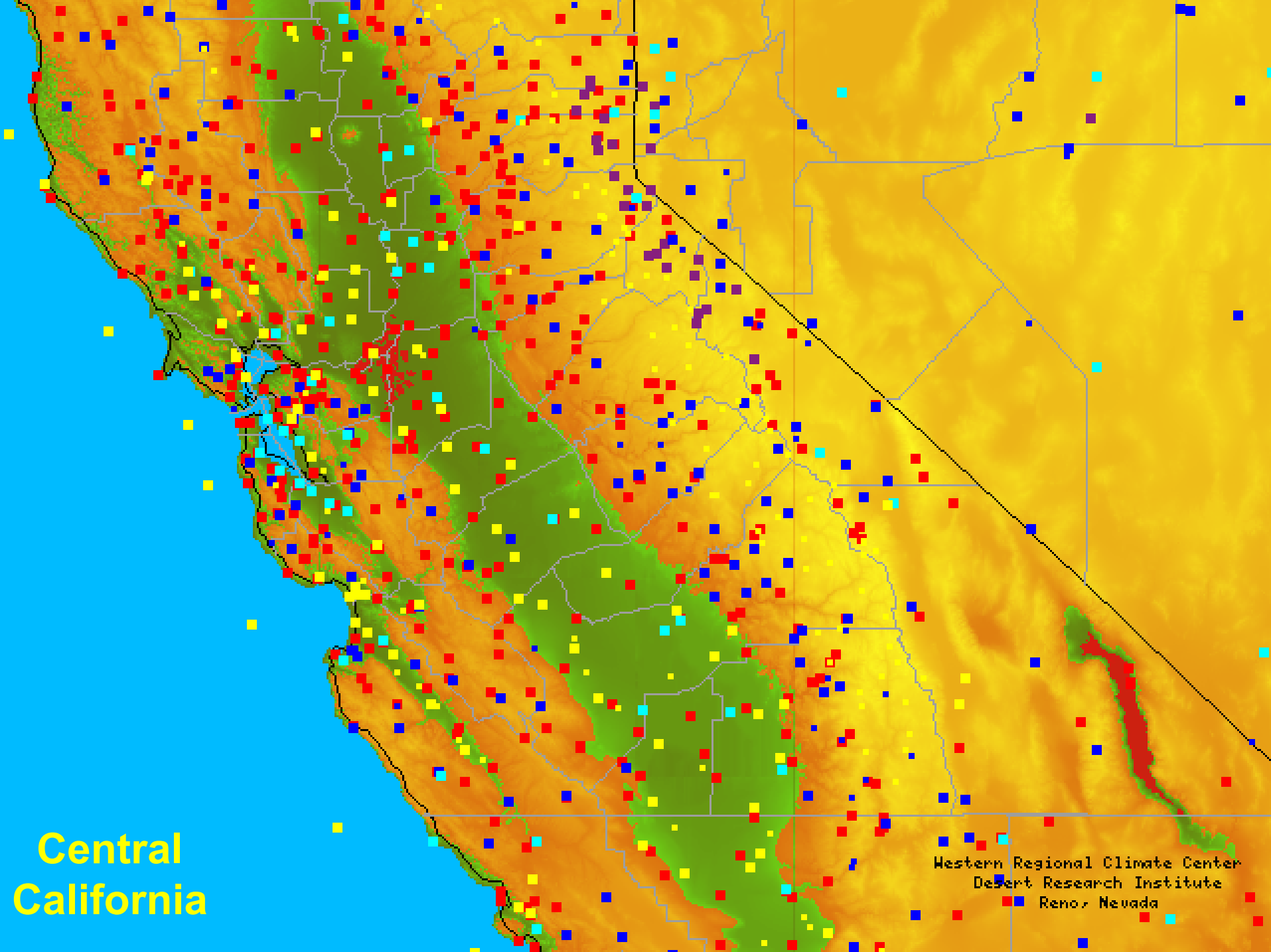
Western Regional Climate Center,
wrcc@dri.edu

Precipitation Probability by Quantity



Back to Probability Graph Options


Northern
California
Western Regional Climate Center
Desert Research Institute
Reno, Nevada


Central
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Western Regional Climate Center
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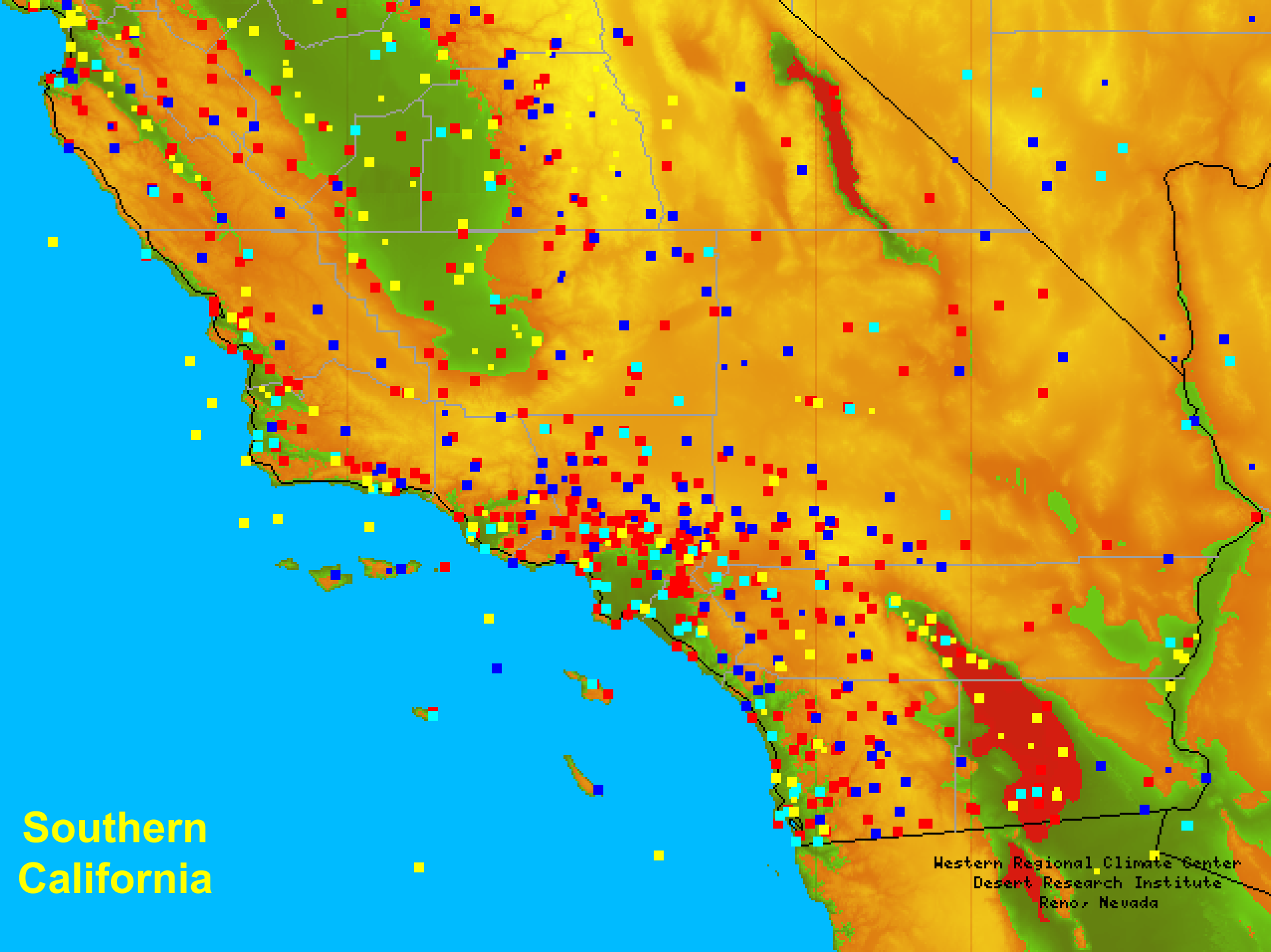
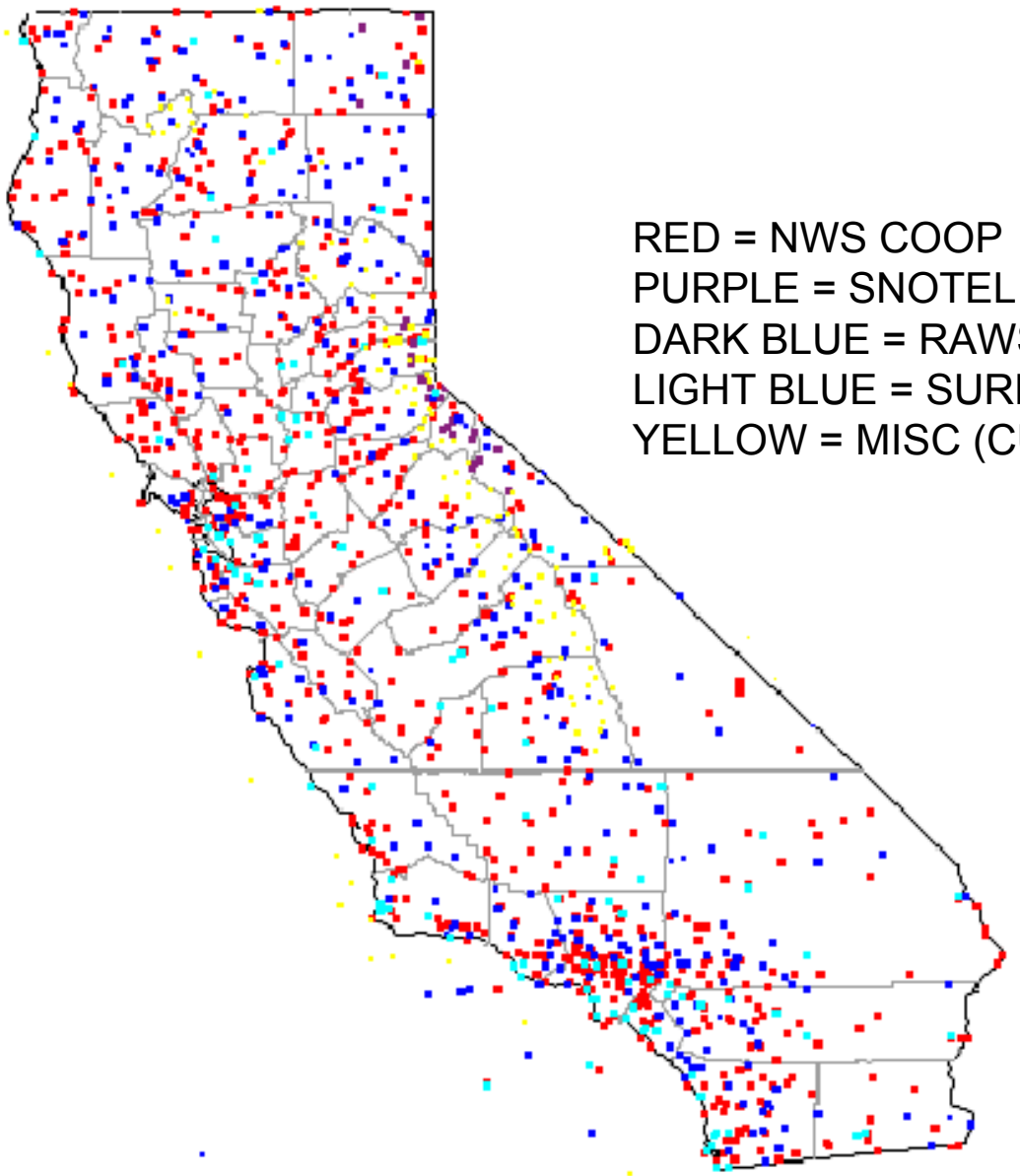
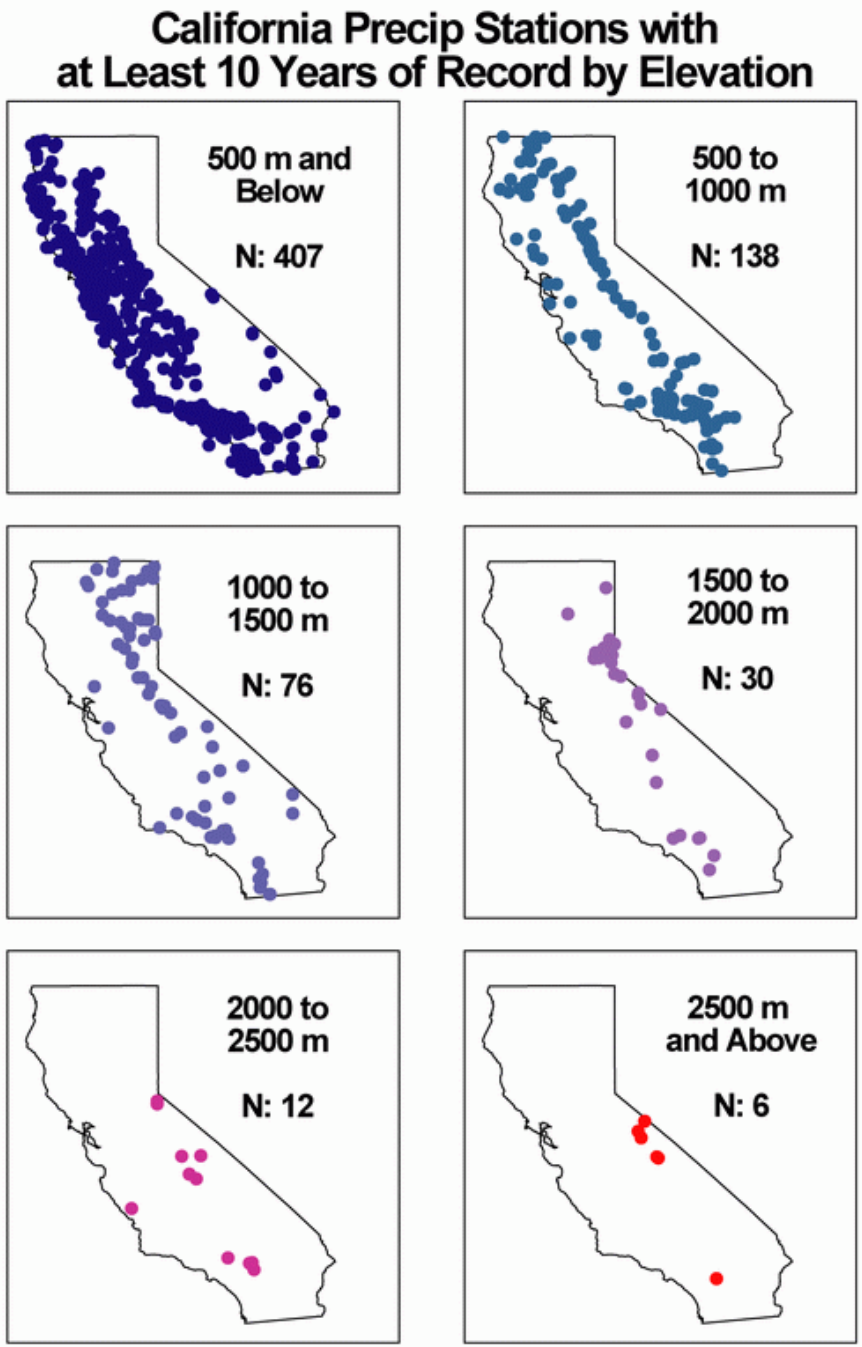

Southern
California
Western Regional Climate Center
Desert Research Institute
Reno, Nevada

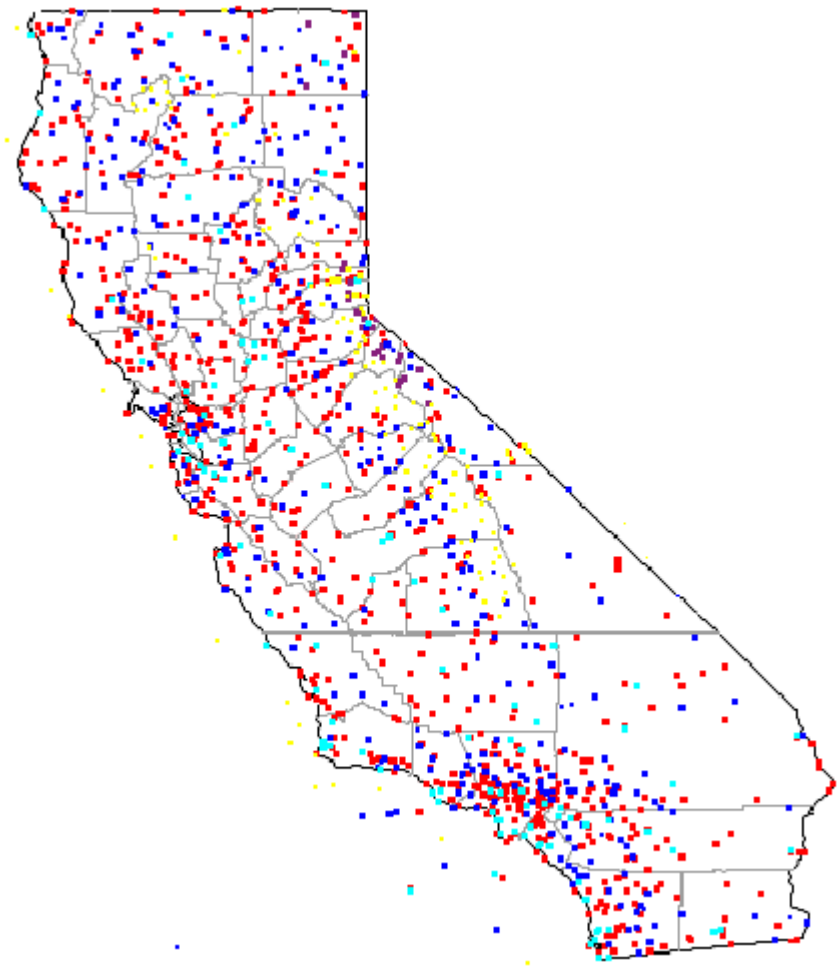
Current Stations



RED = NWS COOP
PURPLE = SNOTEL
DARK BLUE = RAWS
LIGHT BLUE = SURFACE AIRWAYS
YELLOW = MISC (CURRENTLY CIMIS, CDEC, BUOYS)

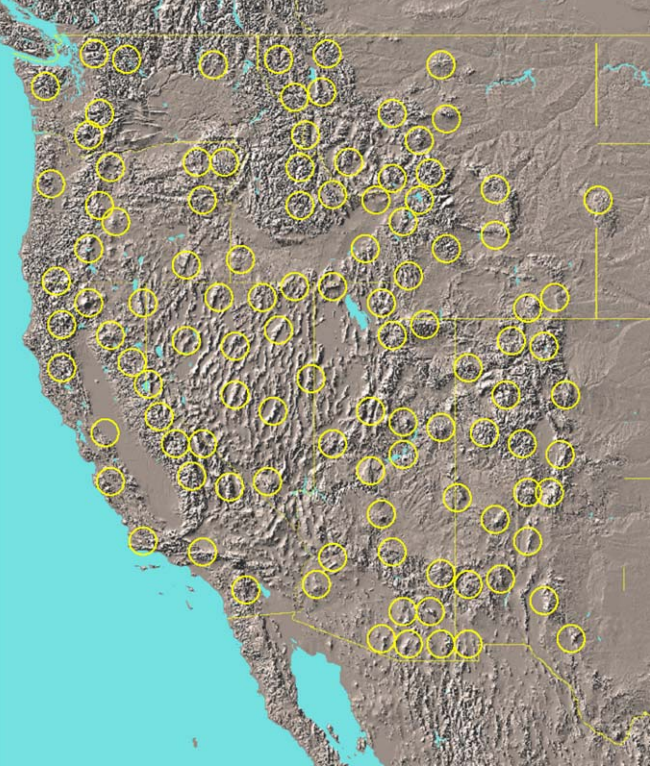
A Need for High Elevation Sites





Left figure: Dan Cayan, Scripps Climate Research Division, California Applications Program


2003 March 10



A High Elevation Reference Network

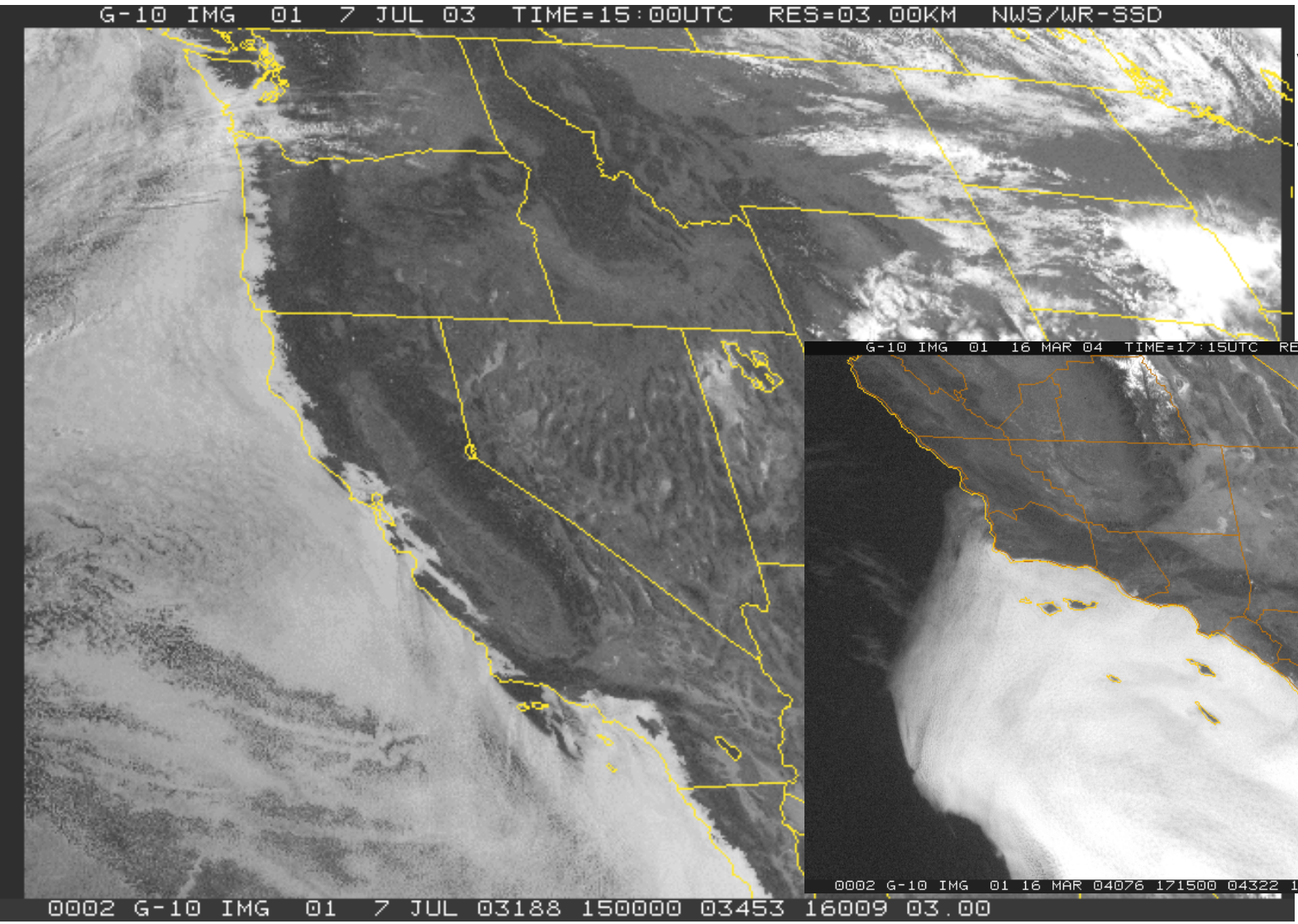
White Mountain Summit 14,245 ft

www.wrcc.dri.edu/weather/wmtn.html

South **Central Sierra Snow Lab** East

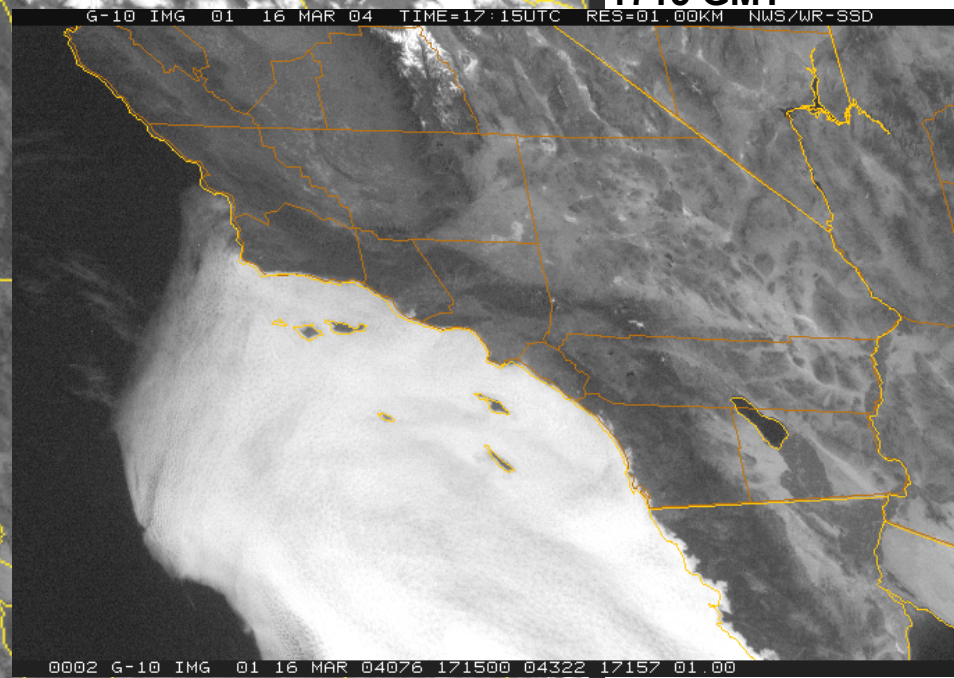
Photo: Dave Simeral

What's so special about the coast?



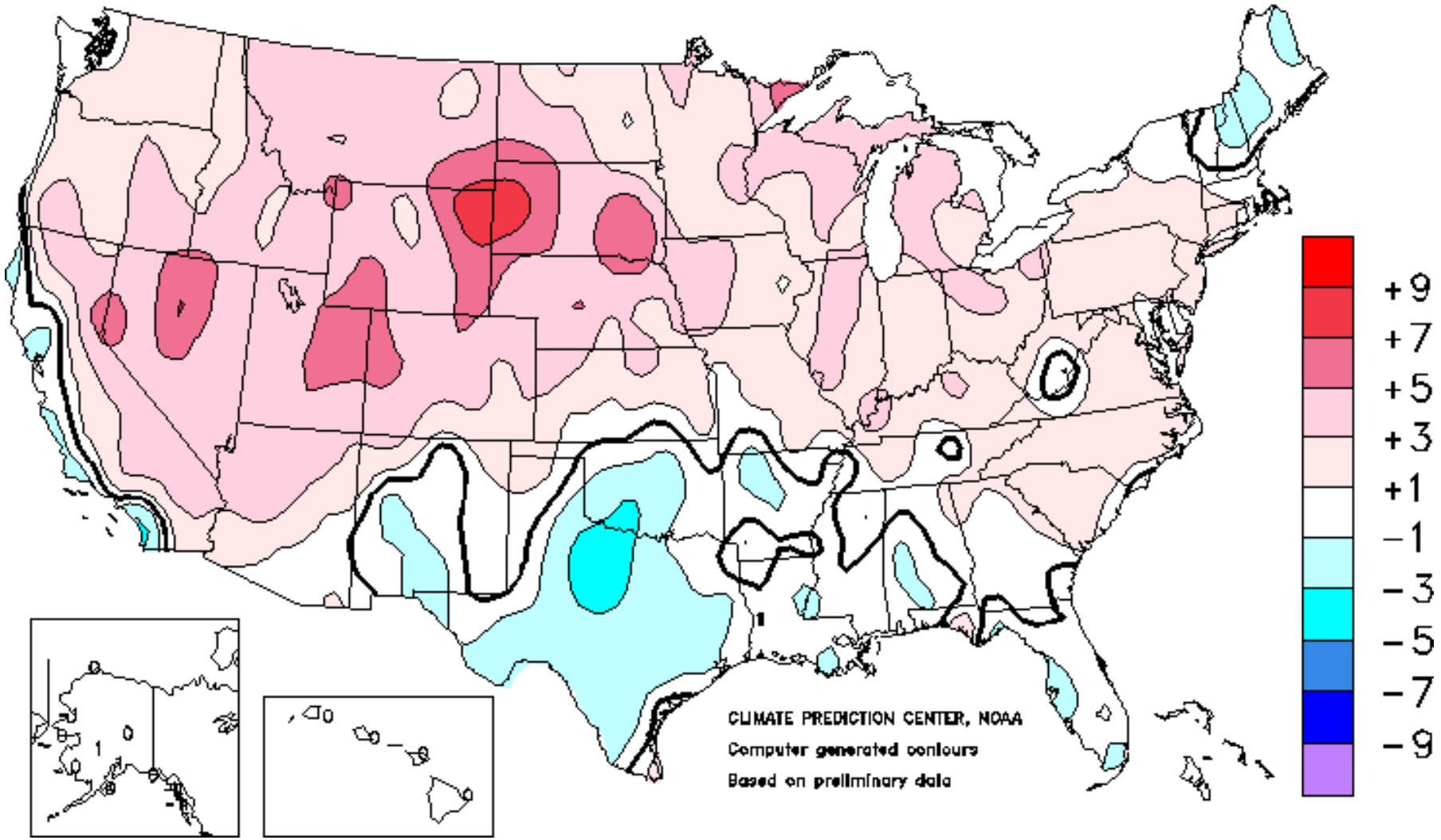
Left:
Visible Satellite Image
July 15, 2003
1500 GMT

Below:
March 16, 2004
1715 GMT



Departure of Average Temperature from Normal (°F)

July 2002



California Coastal Climate Data Archive

Joint effort with Scripps

NOAA Cooperative Sites

NOAA / FAA / Surface Airways

NOAA Data Buoys

NOAA CMAN – Coastal Marine Automated Network

Air quality, lighthouses, piers, local

Research data sets as available, profilers, etc

It’s not easy to find a pristine observing location !

Every site has a bias of some sort.

Related Projects

California Applications Program (NOAA, Scripps)
California Coastal Climate Data Archive (CEC, Scripps)
Enhanced California Climate Monitoring (CEC)
Sierra Nevada Climate Monitoring (CEC, Scripps)
Blue Oaks Paleoclimate (Calfed, UArk, UAz, Scripps)
Climate Reference Network (NOAA)
Yosemite Wireless (NSF, Scripps)
RAWS QC (NIFC Boise)
Base activities (NOAA, WRCC)
Caljet/Pacjet program successor – SHARE (NOAA, __?)

Summary and Future Directions

Website up and running

Coop data now available; other networks to follow

***California Climate Watch* posted by 8th of new month**

Work in progress:

- **California Coastal Climate Data Archive**
- **Enhanced California Climate Monitoring (ECCM)**
- **Merge federal and state snow data sets**
- **Climate data inventory for California**

Feedback and ideas always welcome !

Contact information

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www.calclim.dri.edu

Other California climate things

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Regional Climatologist
Western Regional Climate Center
775-674-7011 voice
775-674-7016 fax
kelly.redmond@dri.edu
www.wrcc.dri.edu


Thank You